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THAT SEAL QUESTION.

The reply of the Canadian government on the sealing question concerning the position of the United States, viz., that they should agree to stop the killing of seals for a year beginning January 1, before the United States would consent to enter into any agreement upon the other questions between the two governments, has been forwarded to Washington.

The Canadian government points out that under the existing state of things every British subject has a right to engage in pelagic sealing unless prohibited by an imperial decree, which can only be issued by authority of the imperial parliament. As parliament will not meet until February, up to the month of March it is not possible to comply with the proposal of the United States.

There is no reason why the proposed joint commission should not be appointed at once and meet, say within a month, and conclude the consideration of the half dozen questions to be submitted. If the joint commission agreed upon these questions, and the senate ratified, the necessary legislation could be procured from the British parliament without delay, and the suspension of pelagic sealing go into effect in the spring, or before the fleets entered Bering Sea, which is not until August 1.

It is pointed out also that if, as a result of the sitting of the joint commission, an end was put to pelagic sealing, the compensation to which the sealers would be entitled would, of course, be paid by the United States, and be calculated on a number of years, and the national advantages which would accrue to Canada as a whole would be equivalent for the concession to the United States of the suppression of pelagic sealing.

Mr. Foster's proposal, however, to suspend pelagic sealing for a year as the condition upon which the United States will agree to a joint commission, would, if accepted, render Canada liable for the payment of the claims of the sealers, and as such an arrangement would inevitably involve the extension of the modus vivendi over a second season, the compensation would be very heavy, and at the end of it all the sittings of the joint commission might fail to agree.

It is authoritatively stated that the United States first proposed to pay the Canadian government a lump sum of money to extinguish pelagic sealing, a proposal which Sir Wilfrid Laurier instantly refused.

ADVERSE TO THE CANAL.

Major Thomas W. Symonds, Corps of Engineers, U. S. A., government engineer in charge of the Buffalo district, reporting on the proposed ship canal to connect ocean and great lakes, finds that ocean vessels are not suitable for lake navigation; that lake vessels are not available for service on the north Atlantic, and that a vessel combining the advantages of both types does not promise satisfactory commercial results. An ocean freighter drawing twenty-seven feet of water costs $500,000 and carries 6,500 gross tons of dead freight and 420 cattle. The modern lake steamer carrying 5,000 tons on a sixteen-foot draft and 7,000 tons on a twenty-foot draft, costs $250,000—or $50 per ton of capacity at sixteen-foot draft and $35 per ton at twenty-foot draft, while the modern ocean ship cannot be built for less than $66 per ton of extreme carrying capacity. The reason of this great difference in cost is that ocean service requires finer lines and heavier, stronger and deeper ships, and thus the Atlantic freighter is deprived of the facilities for rapid handling of freight characteristic of the lake craft. Each type of vessel, therefore, has its own field; the Cunard line steamer is at a disadvantage on the lakes and the lake freighter is practically useless when put on the ocean. In consequence of the radical difference in conditions, lake transportation is materially cheaper than ocean transportation; the New York and Liverpool rate is 0.517 mill per ton mile, and the Chicago-Buffalo rate is 0.484 mill, and in this case the rule that the longer the haul the lower the rate does not seem to hold, as the distance from New York to Liverpool is three times that of the Chicago-Buffalo route. The difference in favor of the lake steamer is due, as stated, to the remarkable system of unloading, which cannot be applied to ocean vessels because it would unfit them for service in gales, destructive to cheap and weakly-built ships. The inference to be drawn is that it will be unprofitable for either type of vessel to go out of the transportation field for which it was designed, and if Major Symonds is correct in his assumptions, a waterway large enough for ocean steamers will not decrease the cost of moving freight enough to justify the enormous expense entailed.

Some time ago the deep waterways commission recommended a channel twenty-eight feet deep in order that ocean vessels might sail from the Atlantic to the lakes. Major Symonds does not consider that extreme depth necessary if the object sought is the most economical water transportation between the lakes and the eastern cities and export points. In this connection it is proper to state that the cheapest transportation known is given by sixteen feet of water. Is it essential, then, to provide a depth of twenty-eight feet, as advised by the deep water commission? The sixteen-foot channel can be built for one-fourth the money required for a twenty-eight-foot canal, and if the ocean freighters do not charge less on inland waters than they do on the Atlantic, what is gained by the greater expenditure?

The point emphasized in the report of Major Symonds is that the country needs the cheapest water transportation from the lakes to the sea coast, and that this appears to be guaranteed by the employment of barges of 1,500 tons capacity which only require twelve feet of water, and the enlargement of the Erie Canal, to accommodate barge traffic, he considers the best solution of the waterways problem. The information collated shows that domestic freight is more important than foreign traffic, and a canal which lessens charges on foreign-bound produce benefits only the producer, while a canal which cheapens transportation on freight used at home benefits producer and consumer and is as advantageous to the west as to the east. Barges can be taken to points on Long Island Sound and along the coast of Delaware and the Chesapeake Bay. The remarkable economy of barges has been demonstrated beyond doubt, and in domestic trade there is no occasion for breaking bulk between the lake ports and New York or other tidewater points in the coast named.

NEW WRECK CHART.

The weather department is about to begin work on a wreck chart similar to those issued up to 1895, but a little more elaborate. This chart, which will be out in January, will contain the wrecks on the lakes for 1895 and 1896. These charts, says Inspector Conger, of Detroit, are eagerly sought, not alone by masters, but by people of all classes who have any interest in lake marine. Not only are the wrecked vessels familiar to them all through acquaintance, but they like to look at pictures that show them where the greatest number of disasters have centered. Names, places and all other necessary information will be given on this chart.

LAKE STORMS.

The first half of December, during which time navigation on the Great Lakes practically comes to an end, is a stormy period, yet according to the Weather Bureau, not more so than on any other time during the winter season. The winds of November may be as high or higher than those of December, in fact there is no single month of which it may be said the winds are notably stronger than during any other month of the year.

ANOTHER SUBMARINE BOAT.

The Raddatz submarine boat was given a successful test Saturday in Fox river and Lake Winnebago.

Mr. Raddatz has been experimenting with the vessel for eight years.

The submarine boat looks as though it would be equal to any reasonable demands that might be made upon it, its steel prow being capable, it is asserted, of piercing the sides of any cruiser afloat. It is 65 feet long, 4 feet wide and 7½ feet in depth. Its weight is 31 tons. It is built of steel plates closely fitted over a heavy framework of iron, and the inventor estimates that it can withstand the pressure of the water to a depth of 50c feet.

The entrance is through the turret, which is two feet high, and furnishes the only entrance or exit.

The closing of the manhole of the turret and the descent into the water causes novel sensations at first, yet a trip lasting more than an hour, with a submersion varying from 10 to 20 feet, furnished no unpleasant experiences. The air in the boat at the end of this period was as pure as at first. Mr. Raddatz keeps his process of furnishing air a secret.

The boat inside is four feet in diameter at its widest point, making it impossible for a man to stand upright save in the turret. Here are fitted several bull's-eyes with strong lenses for exploration.

There are two sets of machinery for propelling purposes, a hot air engine of nearly 30 horse-power for use on the surface, and an electric motor for the submarine voyages. Immediately under the turret is a steering wheel, like the wheel of a small yacht. Mr. Raddatz, in operating the boat, sits under and slightly to the rear of the front turret, holding the steering wheel with his right hand, while with his left hand he controls the starting button on the left, a small knob that starts the motor. Two gauges to registet the voltage and amperage are on the right hand, and an automatic machine has been provided to prevent the submersion of the boat beyond the depth desired.

There are several batteries, and if one breaks down others can be quickly put in to take their places. The battery cells are in the side of the boat, and connected with them is one of the most ingenious devices of the inventor. When the cells become exhausted the motor used for propelling under water is reversed and run as a dynamo, and they are recharged. In the stern of the boat is a hot air engine, like the pumping engines used in factories, connected with the propeller shaft. A storage battery of 30 cells is also near the engine.

All the valve gears are inside the turret, within easy reach of the pilot, and all the machinery that operates this craft is easily managed by one man.

The turret is only two feet in diameter, and holds only one person at a time. The boat can carry only about four persons comfortably, although six might be stowed away in her.

The motion of the boat in the water is so even that it is almost imperceptible. This is due to the fact that resistance is reduced almost to nothing by the shape of the boat and the smooth action of the machinery. The spirit level on our trip showed almost no variation from the first. The only time motion was observed was in the descent, and then it was merely a gentle decline.

The craft can be turned easily under water, and can be raised and lowered without shock, rolling or jolting.

Supt. Kiah, of the life-saving service, has made a deserved promotion in the person of Surfman James Hunter to the position of keeper. Mr. Hunter will receive his commission in a few days and has been assigned to Crisp station, Lake Superior. Keeper Hunter has been in the service for several years and has always been attentive as well as proficient in his duties and in this case merit wins.

NEWS AROUND THE LAKES.

CHICAGO.

Special Correspondence to The Marine Record.

The steamer Jay Gould has received some general repairs.

Grain freights advanced to 2½ cents on corn to Lake Erie ports on Tuesday.

The steamer George Stephenson, of the Bessemer fleet, has broke the oat cargo record this week by loading 323,250 bushels.

Capt. John Prindiville chartered the steamer Frontenac for corn to Erie at 1½ cents, the steamer Pontiac for wheat at 1¾ cents.

The United States Customs Barge office at Rush street bridge will be closed from 12 midnight till 8 a. m. from December 1st.

The small steamer Uncle Charley has been purchased by Jeremiah Madden, of Rapid River, Mich. She will be used to tow logs on Little Sayde Nogue.

The steamer Iron Duke is in, and will receive 100 feet new keel forward, new fore foot, new garboards, some new bottom plank, and calking all over.

Navigation on Lake Superior will not be ended by the ice in St. Mary's river for some days to come, according to the probabilities given by the weather bureau.

At the shipyard here the steamer I. Watson Stephenson is in dock, receiving 126 feet of new keel forward, a new fore foot, and one new garboard and calking all over and ironing.

The O. S. Richardson Fueling Company unloaded from the steamer City of London 2700 tons and steamer Gladstone 2400 tons of Black Horse coal, last week, at their North Pier dock.

J. L. Higgie, Jr., receiver of the Vessel Owners' Towing Company, has sold the tug Thomas Hood to H. W. Hubble, of Saginaw, Mich., for $2,100, and the tug A. A. Carpenter to Porter Bros., contractors, of Duluth, for $2,200.

The Graham & Morton Transportation Company have chartered the Lake Michigan & Lake Superior Transit Company's steamers City of Duluth and City of Traverse, to run between Saint Joseph, Chicago and Milwaukee during the winter months.

The Common Council has passed an ordinance making it a punishable offense for any tug or steamer to tow more than one vessel, scow or other craft within the river or harbor at that point at a time. A fine of from $10 to $50 awaits violators of the ordinance.

The steamer Kalkaska has been purchased by Chicago parties. The Kalkaska was built at St. Clair, Mich., by Simon Langel in 1884; she measures 679 gross tons. Her dimensions are: 178 feet long, 34 feet beam, 15 feet hold, and she rates A1. She is a great lumber carrier.

The steamer I. Watson Stephenson, Capt. John Nicholson, with her consorts Advance and Alert, have made 35 round trips between Menominee and Chicago during the past season. The Stephenson will leave this week for Menominee, to go into winter quarters.

The sixth annual reception and ball of the Shipmasters' Association, Chicago Branch No. 3, will be held at Medinah Hall, corner Fifth Avenue and Jackson street, Wednesday evening, January 19, 1898. The members of the Association will use their best efforts to make it a great success, and hope their numerous friends will rally around them in large numbers and enable them to do so.

The steamer Lagonda, grain laden, when going down the river, stuck fast on Washington street tunnel at 2 a. m. Sunday, and remained on more than twelve hours when, with the aid of several of the Dunham Towing & Wrecking Company's tugs, and lines on the dock attached to the steamer's steam windlass forward, she was released.

H. W. Cook & Co. chartered the steamer Panther for clipped oats. Manitowoc to Buffalo, at 1⅛ cents; the steamer S. S. Hadley, for corn to Buffalo, at 1⅝ cents; steamer D. W. Rust for clipped oats from Manitowoc to Buffalo, at 1¾ cents; steamer John Otis, for lumber, Menominee to Chicago, at $1.25; steamer Westover and consort Bliss, for lumber, Manistee to Michigan City, at $1.37½.

The Chicago Shipbuilding Company launched at their shipbuilding yard at South Chicago at 2:30 o'clock Saturday afternoon the largest steel barge on the lakes. Her dimensions are 390 feet over all, 48 feet beam, 26 feet molded depth. The boat was named the Australia and was christened by Miss McKinnie, niece of James Corrigan of Cleveland, the owner. The barge is supplied with an electric light plant, steam pump, steam winches, steam steerer and steam heat. Her carrying capacity is 6,500 tons.

Miles Barry, alderman of the Twenty-fourth Ward, has just had an ordinance passed which will be a decided benefit to all vessels trading at Chicago.

Hitherto the dredging and canal boat companies have been towing four dump scows or four canal boats, and sometimes more, in each tow, and when the dredging company's tugs or canal boat company's steam canal boats were going up or coming down the river, occupying both draws of a bridge, it placed all boats at a serious disadvantage, and caused damage to be done to either the boats or other property along the river. The new ordinance provides for only two scows or canal boats to be towed at one time.

The steamer Gogebic will doubtless spend the winter on the rocks at North Manitou Island if she does not become a total loss from the heavy seas and the drift ice before spring. The wrecker Favorite is on the spot but cannot work on account of the rough weather. The steamer is in bad shape. She is resting on a bowlder amidships and her hatch combing is broken, showing that the ship is sprung. It is not known whether she would leak, as she was scuttled to prevent pounding in the heavy sea. The stern is in ten feet of water, the bow in eight, with only six feet of water amidships. Hydraulic jacks will be necessary to float her again, and still water is necessary for their operation. Only a remarkable spell of calm weather will help to release her.

Vessels are being chartered as if winter was not at hand. There is no intention of placing any except small steamers and tow barges out of commission, until boats cannot run another day. Insurance rates this season are favorable to the continuation of navigation until ice blocks the way. On all boats permission is given to continue out until December 12th, and if on a voyage a boat can complete it after that date, all without extra charge. On grain cargoes, the Chicago Board of Marine Underwirters last spring continued its rates until December 10th. This is ten days longer for grain insurance without extra charge than in previous years. For several seasons past business has naturally come to an end the latter part of November, but this year the best freight rates for two seasons are now being paid, and the volume of business is sufficiently heavy to keep the entire fleet of first-class vessels in service. Little calculation will be made as to where boats are to winter. They will simply stop where they are when they can run no longer.

The schooner Truman Moss, Capt. C. Jacobson, arrived, Monday night at 10 o'clock, badly iced up. She left Manistique with lumber, Saturday morning at 6:30 o'clock, wind northwest, freezing hard. By Sunday morning the wind had shifted to southwest, which freshened up Sunday afternoon from the westward, accompanied by a heavy snow storm, which cleared up Sunday night at 9 o'clock, when the wind veered to west northwest, and it commenced to freeze hard. At eleven o'clock the vapor from the lake was so thick that those on board could not see ten yards ahead. The captain went up into the fore crosstrees, where he could see over the vapor, and remained until 2 p. m., when he was compelled to come down, as he was nearly frozen. He sent one of the crew up to watch, and changed watch up there every half an hour until morning, when the weather cleared up and the tug Perfection took her in tow between Milwaukee and Racine and towed her to Chicago. Her anchors, chains, windlass and rigging was a mass of ice. Capt. Jacobson, who has had twenty-five years of sailing, says his trip was the toughest he ever experienced.

Period of greatest fog on Lake Michigan, October 23-27. 19th, heavy fog at Menominee, Manitowoc, Muskegon and Manistee, light at Greenbay; 20th, heavy fog at Menominee, Muskegon, Manistee and Grand Point au Sable; 23d, dense fog at Chicago in early morning, fog in the forenoon at Greenbay, Muskegon and Grand Haven, and again in the evening at Muskegon; 24th, fog was reported from Manistique southward to Kewaunee on the west shore and from Grand Haven northward to Glenn Haven on the east shore; masters report heavy fog from mid-lake off Grand Haven to South Manitou Island from 9:30 a. m. to 9:30 p. m.; 25th, fog was general over the northern portion of the lake during the early morning and in the afternoon and evening; 26-27th, fog was general over the northern portion of the lake, over the Straits of Mackinaw extending as far south on the eastern shore as Grand Haven; this was the beginning of the general fogginess which lasted throughout the 27th; fog formed during the early morning of the 26th, lifted about 10 a. m., set in again in the evening, and continued throughout the 27th; on the latter date it was reported from all stations on the lakes and by vessel masters during the early morning and again in the evening; the fog was unusually heavy; in some places electric lights were not visible a distance of one block; 28th, fog at Chicago and Grand Haven during the morning; 30th, dense fog at Chicago from 9 to 11 p. m.; 31st, heavy fog at Chicago and Grand Haven during the morning. November 5, heavy fog at Muskegon all day; 7th, heavy fog at Chicago in the morning; 8th, light fog at Grand Haven until noon; 15th, heavy fog at Chicago, Grand Haven, South Haven, and Milwaukee.

BUFFALO.

Special Correspondence to The Marine Record.

With the end of the month the C. & B. line of steamers stopped running, after a very successful season, both in carrying freight and passengers. Next season the large new steamer will be placed on the route and it is expected that she will be the speediest as well as the largest side-wheel steamer afloat on the lakes. General Manager T. F. Newman is well pleased with the season's work as well as the outlook for next year.

Coal shippers are stopping off one by one, and the season is coming to a close with them apparently faster than with the grain and package freight carriers. Tuesday's charters were the Lewiston, Palmer, Samoa, Celtic, Armour, for Chicago; Rappahannock, Erie to Chicago, all at 60 cents; Sevona, soft coal to Duluth, 85 cents. A great part of the tonnage taken now is for holding cargo at destination thirty to sixty days.

Buffalo received over 100 cargoes of Manitoba wheat this season, of which about thirty exceeded 100,000 bushels each. The season has not entirely closed yet.

Lake Ontario shows the following fog limits for the month: October 19th, light fog at Ogdensburg during the early morning; 22nd, fog at Charlotte from 11 p. m. to 9:30 a. m. of the 23rd; 23rd, heavy to light fog at Fort Niagara, Charlotte and Sodus Point; 24th, fog was of general occurrence along the south shore from Fort Niagara to Ogdensburg; 25th, fog on the St. Lawrence river from Cape Vincent to Ogdensburg during the early morning, and at Fort Niagara, Oswego and at North Fair Haven during the evening; 26th, fog at North Fair Haven, Oswego, Sodus Point, Fort Niagara, Charlotte and Ogdensburg, at intervals during the day; 28th, dense fog at Fort Niagara from midnight until 2:30 a. m.

Following are custom house figures in tons on coal shipments for three seasons to date. It will be seen that this season has gained on last very materially of late:

Months.	1897.	1896.	1895.
April	29,400	25,820	27,640
May	169,450	269,514	232,148
June	222,793	348,947	265,381
July	239,345	249,615	299,660
August	281,983	346,286	307,197
September	258,730	334,997	332,155
October	409,313	374,577	468,148
November	474,016	366,510	533,708
Total	2,085,029	2,316,268	2,466,033

The second wrecking expedition, which was sent to the sunken steamer Idaho, near Long Point, in the steam barge Saginaw Valley, returned to this port on Sunday, after unsuccessful attempts to get at the Idaho's cargo. The weather was so stormy that the wrecking steamer spent nearly all her time under the shelter of Long Point. The diver says that the Idaho's hull seems to be intact. The insurance companies will make no further efforts this year to get at the Idaho's cargo.

The canal season has virtually closed and the best that can be said for it is that it has not been the worst season on record. That pre-eminence still belongs to 1895. The wheat shipments during the past year reached 25,964,172 bushels. This is a decrease of 11,000,000 bushels compared with last year but an increase of 5,000,000 bushels over 1895. The average rate of freight on wheat was 2.8 per cent., compared with 3.7 per cent. last year and 2.2 per cent. in 1895. The rate on grain this year is the lowest with one exception on record.

The largest grain fleet of the season is in port. Ten boats had nearly 2,000,000 bushels of grain. The line boats are beginning to lay up. The Anchor and Western lines have retired three each, and no more of the Union Transit boats will leave this season.

CLEVELAND.

Special Correspondence to The Marine Record.

The R. P. Ranney is in the Cleveland dry-dock for repairs to stern bearings.

Capt. Ed. Morton, ships-husband for the Wilson Transit Co., is making the trip to Fort William on the steamer Rees.

Capt. Clint Ennis assumes command this week of the steamer Pickands, in place of Capt. J. W. Searles resigned.

The Cleveland & Buffalo Transit Co. stopped running this week, the last boat leaving Buffalo on Tuesday, Nov. 30th. This line has now a fleet of three large side-wheel steamers with a fourth building by the Detroit Dry-Dock Co., at Wyandotte, Mich.

The following invitations are out: The Globe Iron Works Co. request the pleasure of your presence at the launching of the U. S. S. Algonquin, built for the United States Revenue Cutter Service, for use on the Great Lakes, on Wednesday afternoon, Dec. 8th, 1897, at 2 o'clock, standard time. Shipyard, west old River street, Cleveland, Ohio.

Goulder & Shaw, for the steamer Conemaugh, and J. D. Canfield, as intervener for the cargo, have asked the United States Court of Appeals, at Cincinnati, for a rehearing of the Conemaugh-New York collision case. A few weeks ago the court reversed Judge Swan's decision and held the Conemaugh at fault for the collision and assessed all the damages and costs, over $80,000 on her.

Mr. Elmer Ennes, nephew of Capt. Clint Ennes, who was chief engineer of the steamer Louisiana for several years, died at his home, No. 1349 Detroit street, of consumption. Mr. Ennes sailed for a number of years, and although he was but 35 years of age he was regarded as one of the best men on the lakes. He had to leave his boat about seven weeks ago. The funeral will take place Sunday afternoon.

Work at the yards of the Ship Owner's Dry-Dock has been very brisk this week. The schooner Mabel Wilson received new spars, three lower masts and four topmasts, as well as a new jibboom. The W. D. Becker was searched up and the steamer La Salle is now in for twenty new shell plates and sixty-eight frames. The steamer Green and also the tug Kennedy was in dock this week.

The steamer Nahant burned at the dock in Escanaba, on Tuesday. Two lives were lost, fireman Jacob Blessner, of the Nahant, and a deckhand named Harold Miller. The fire started in the steamer when she was partly loaded with ore, and communicated to the lumber dock, on which a quantity of pine lumber awaiting shipment was soon ablaze. The loss on the dock will approximate $150,000. This includes twenty-eight ore cars and 5,000 tons of ore which could not be moved. The dock, owing to the depression in the ore trade, will not be rebuilt. The insurance companies having the $6,000 risk on the steamer are the Union Marine, Western Assurance, British America, and Chicago Insurance. Capt. C. E. Benham had only $3,000 on his five-eighths

interest in the steamer. The Nahant was valued at $28,000 in this year's Inland Lloyds.

The Weather Bureau reports that fog was most frequently met over the western end of Lake Erie from Point Pelee to the mouth of the Detroit river. October 18th, Lorain from 5 p. m. to 6:30 a. m. of the 19th; again at 4:30 p. m. of the 19th, continuing until the noon of the 20th; light fog at Erie on the evening of the 19th to the morning of the 20th; at Cleveland from midnight of the 19th until 5 a. m. of the 21st; the fog was heavy 9 a. m. until noon 20th; 22d, Cleveland and Buffalo, dense fog at 9 p. m. continuing until the morning of the 23d; on the latter date, heavy fog prevailed during the early morning and well into the forenoon over western end of the lake, being quite dense during the morning; 24th, heavy fog over the western end of the lake during the night of the 24th-25th; also at Buffalo; 25th, fog over the eastern end of the lake from Dunkirk to Buffalo; 26th, fog over the eastern end of the lake during the morning; also on the western end in the morning and again in the evening; the fog which prevailed on the evening and night of the 26th was very dense on the extreme western end of the lake, delaying shipping; the fog continued during the 27th over the western end of the lake; 28th fog at Toledo until 8:45 a. m. November 1st, fog over the mouth of the Detroit river, and also at Marblehead; 4th, light fog at Erie during the morning; 8th, fog from Cleveland to Erie during the day and at Buffalo during the afternoon, also at Sandusky during the morning; 9th, light fog at Erie all day; 14th light fog at Marblehead from 8 a. m. until 9 a. m. of the next day.

DETROIT.

Special Correspondence to The Marine Record.

It is estimated that there are yet 2,500,000 bushels of grain to go to Buffalo from Duluth this season, and 600,000 bushels to Chicago.

L. C. Waldo received a telegram from the captain of his boat, the Waldo, at Duluth, which stated that the ice was already eight inches thick at that port and that the mercury was four degrees below zero. An early closing of the season is inevitable.

The forefoot and sixty feet of the Iron Duke's keel were carried away in her recent mishap at Chicago. It will take three weeks and $3,500 to repair.

The new life-saving station, located six miles above Fort Gratiot light, on Lake Huron, will be completed by Christmas. The contract expires Jan. 1.

The shipments from Bay City during the past season were: Lumber, 80,719,209 feet; lath. 2,670,000; shingles, 550,000; salt, 49,960 barrels. The receipts of lumber were 23,668,150 feet. In 1890 shipments of lumber were 45,668,000 feet; lath, 150,000 and shingles 275,000.

On Dec. 8, the thirty years of corporate life of the Detroit & Cleveland Steam Navigation Co. will have ended. A new company on the same day will be organized, to be named Detroit & Cleveland Navigation Co., which will assume all the liabilities of the old and will buy all its property. There will be no change of policy.

Low water has caused an awful lot of trouble here this week. The draft at the Limekiln Crossing went down to 16 feet 3 inches and quite a number of boats waited for a raise, while two or three boats grounded, owing to the shoal water at the mouth of the river. There is, of course, plenty of water at Detroit, but at Amherstburg it is much different.

Parties at Port Huron are negotiating with Mr. Crockett McElroy for the purchase of the fast steamer Unique, now laid up at Sarnia. If the deal is made she will be put on the Port Huron and Detroit route, leaving every morning at 7 o'clock from spring to the close of navigation. The parties are men of wealth and will put the boat in first-class condition, so that there will be no more detention on account of defective machinery. A lively time in rate cutting is expected to follow the advent of the Unique on the Port Huron-Detroit route.

Fog prevailed on the Detroit river from October 19 to 28, inclusive, excepting the 21st; it was heavy on the 19th, 22d, 23d, 24th, 25th, 26th and 27th, and light on the 28th. The fog banks were heaviest from the mouth of the river to Sandwich Point, opposite Detroit, and on Lake St. Clair. It was generally dense about midnight of each date, remaining so until 8 a. m. Navigation was practically suspended on the night of the 26-27th. 31st, heavy fog from 6 to 7 a. m.; November 2, light fog on Lake St. Clair; 7th, light fog on the river; 11th, heavy fog on Detroit river south of Sandwich Point; 15th, dense fog on Detroit river from 6:30 to 10 a. m.; light fog during the remainder of the day.

It is now understood that the Lackawanna sustained her damage by striking on a "coaming" of the Ballard's Reef cut. A coaming is loose earth and boulders dropped by the dredge dipper when being raised to the dump-scow with the load of excavation from the channel. It falls on the edge of the channel and must remain there until it can be removed by a dredge. In this case it was marked by a light at night and a buoy in the day time, and, besides, a small scow lay right over it. The Lackawanna went over it all, carrying away light, buoy and scow. However, the steamer is absolved from at least the greater part of the blame by the fact that she was crowded far to the eastward of Canadian side by a passing tow, hence her trouble. It should serve as additional warning to passing vessels to keep well to the westward bound up and down, until entirely clear of the reef.

"Our steamer City of Alpena, this season, carries off the plum for distance traveled by any boat, as far as I know on fresh or salt water," said General Manager David Carter, of the D. & C. line. "Since she came out last spring, fifty-eight round trips have been made between Toledo and St. Ignace, every trip being complete excepting the last one, and had the Alpena gone to Toledo, a round 50,000 miles would have been covered. In the past when a boat made 25,000 miles in a season it was thought to be a great achievement; now our boats on the Cleveland division make about 35,000 miles a year each, but the banner record as far as I am informed is held by the City of Alpena and her 50,000 miles. This was all accomplished with only a few minor delays and no loss of life."

FLOTSAM, JETSAM AND LAGAN.

The life-saving crew, on Jones Island, will be laid off for the winter on December 10.

The Goodrich steamer Ludington is in dry-dock at Manitowoc, for a remodeling, at a cost of $40,000. The Indiana will also be rebuilt.

The steamer Atlantic, of the Goodrich line, will be withdrawn from the Chicago-Grand Haven run this week and transfered to the west shore run.

On November 20 and Sunday, 91,000 tons of coal arrived in Milwaukee in forty-five vessels. Another large fleet is expected before the close of navigation.

A great many vessels are moving, but the majority are on their last trips. Sixty-five vessels passed Middle Island, near Alpena, on Saturday, and forty-five on Sunday.

A special from Ashland, says: With the loading of the steamer H. J. Johnson, the season for the northwestern ore docks here closed to-day. The schooner Helvetia, consort of the Johnson, will not get a cargo and must lay up here for the winter according to present reports.

The steamer Gogebic will probably stay on the rocks at North Manitou island all winter. She is in a bad shape, resting on a boulder amidships, and is logged. The stern is ten feet in the water and the bow eight. Hydraulic jacks will be necessary to launch her again.

A. A. Parker, of Detroit, wants the by-laws of the Lake Carriers' Association amended to provide for a minimum rate at which coal shall be carried for the season. It will work all right if he can secure the pledge of every member of the association to everlasting willingness to stick to an agreement of that nature.

Capt. E. C. Chapman, inspector for the United States life-saving service, made an official inspection of Ashtabula Harbor station, Saturday. Nearly all the drills were gone through with by the crew and to the satisfaction of the inspector, who was well pleased to note the efficiency of the crew as well as the discipline maintained by the keeper of the station.

Manitowoc shipbuilders have contracted to build a large-sized fishing tug for Messrs. Endress, this winter. The tug will be 90 feet over all and 80 feet keel, with 19 feet beam. She will be fitted out with the very latest improved machinery, having great power. The Messrs. Endress conduct extensive fishing operations on Lake Superior.

There is one sure sign the season of navigation quickly is coming to an end. The following named boats are at Port Huron, being stripped for the winter: Cataract, Hiawatha, Stanwood, J. C. Clark, Fannie Campbell, Ontario, O. J. Hale, Bay City, Unique, Cambria, E. C. Roberts, Quinby, Aurora, Glad Tiding, Bavaria, Pandora, William Granby, M. L. Beck, City of New York. All these are small vessels, but it will not be long before the largest vessels on the lakes will be following suit.

"Talk about a captain's life at this season of the year," said an old captain this week. "It is anything but pleasant. He has to contend with the wind and the snow, which is even worse than a fog. His owners are anxious for him to make all possible speed. He is anxious to get to port and discharge his cargo. Standing on a bridge in the middle of a lake, with the mercury hovering around the zero mark is no fun. Every captain on the lakes will be glad when orders are received to lay up."

A small cedar box was picked up on the beach at Westfield, N. Y., on Tuesday, by some boys who were searching for relics from the foundered steamer Idaho. The box contained a small Catholic medal, a pair of rosary beads, and copies of the following poems written on foolscap paper: Gray's "Elegy;" Burns' "Man was Made to Mourn;" Ralph Waldo Emerson's "Good Bye, Proud World, I'm Going Home," and Byron's poem, written on the morning of his daughter's birth. There were no other letters or papers in the box. As it was found among some wreckage it is thought to have been the property of one of the crew.

The Montreal harbor commissioners have delivered their findings in the Yantic-Canadienne collision case. Their decision was that if the Yantic had not ported she would have cleared the Canadienne. Peron, the pilot on the Yantic, was severely censured and his license suspended until July 1, 1898. Lieutenant Carter, the officer of the deck, was relieved of all blame. Two minority reports were filed. One signed by two members holds the officers and pilot of the Canadienne blameless, and the other signed by three members condemns the lookout man on the Canadienne as being partly to blame for the collision.

WITH little doubt the longest-lived animal in the world is the giant tortoise of the Seychelles Islands. One has recently been presented to the Zoological Society of London, by Mr. Walter Rothschild, which weighs a quarter of a ton. Its known length of life is one hundred and fifty years, its age previous to its transportation to the island of Mauritius being unknown. In 1833 the governor of Mauritius sent to the zoological gardens a tortoise weighing 285 pounds. It was 4 feet 4 inches long, and had been in the island of Mauritius for sixty-seven years. The exact period was known; for this tortoise was brought to that island from the Seychelles in 1766. At that time it was full grown, so that its real age was probably much greater.

GRAIN SHIPMENTS.

Based on shipments to date and present engagements the season's movements of grain from the Duluth market, is estimated at about 55,000,000 bushels, as compared with about 68,000,000 bushels during the same period in 1896. What difference there may be from these figures is likely to be in the direction of a larger aggregate, for the market influences are favorable and only paucity of supplies will prevent the estimate becoming too small. These figures, it may be explained, represents the movement since January 1, but, inasmuch as shipments prior to the opening of navigation on April 17 were inconsiderable, they would make little difference.

The falling off is due to the light crop of wheat. Receipts of the cereal for the calendar year to date have been about 35,000,000 bnshels as compared with 58,000,000 bushels last year. Shipments from January 1 to the close of navigation will be about 36,000,000 bushels, as compared with about 51,000,000 bushels in 1896.

In coarse grains oats have been most important to date, though the flax receipts and shipments have just set in on a large basis. Receipts for the calendar year have been about 6,400,000 bushels and shipments 6,300,000. Last year's receipts were 4,832,098 bushels and shipments 4,864,954.

It was expected that barley would show a falling off, and the result, though confirmatory; is on the side of an agreeable surprise. Receipts have been about 5,200,000 bushels as compared with 6,866,000, and shipments 4,350,000 bushels as against 6,800,000.

A third of the receipts of flax have come in since November 1, so it is difficult to predicate the total movement up to the close of the year. To date receipts have been close to 5,000,000 bushels. Last calendar year they were practically 6,000,000. Shipments have been about 4,250,000 this year.

Rye and corn receipts have run ahead of last year. The increased movement of corn is due to the activity of the Southwestern country. The corn receipts have been 1,300,000 bushels and the shipments 400,000 bushels. Last year they were 411,000 bushels and 408,000. The receipts of rye have been 1,703,000 bushels as compared with 1,530,000 last year, and the shipments have been 4,323,000 bushels as against 1,273,000.

FOG, OCTOBER 16 TO NOVEMBER 15, INCLUSIVE.

[COMPILED FROM REPORTS OF VESSEL MASTERS, WIND-SIGNAL DISPLAYMEN, AND OTHERS.]

Extensive fog belts seriously impeded navigation on the western end of Lake Erie, the Detroit river, and Lakes Huron and Michigan from October 24 to 27, inclusive. Vessels were obliged to proceed under reduced speed, and in many cases to tie up until the fog lifted. The greatest delay occurred in the Detroit river where, owing to the narrowness of the channel and the density of the fog, navigation was practically suspended at times.

The regions of greatest fog frequency were: The western end of Lake Erie, the mouth of the Detroit river and along the river to Detroit; Lake Huron from near Sand Beach to above Point aux Barques; from Thunder Bay to the Straits of Mackinaw; on the St. Mary's river extending into Superior as far as Whitefish Point. Fog was also observed over Green Bay, and at a few points on Lake Michigan.

This tabulation confirms the statement made by vessel masters that fog is more prevalent in some regions than in others. Fog prevailed continuously at Mackinaw City for 80 hours; at Detroit for 106 hours, a rather remarkable occurrence. It should be noticed that the fog areas on Lakes Huron and Michigan coincide rather closely with the average sailing routes; greater fogginess for those regions can not, therefore, be claimed until we have observations from all other portions of the lake.

The details respecting the occurrence of fog on the various lakes are given by dates. For purpose of description Sault Ste. Marie will be considered as belonging to the system of fog stations ou Lake Superior, according to the map or chart just issued by the Weather Bureau, Department of Agriculture.

ANOTHER RECORD PASSAGE.

The North German Lloyd steamer Kaiser Wilhelm der Grosse, which left New York Nov. 23, arrived at Southampton on Nov. 30. The steamer broke the record for the highest average speed across the ocean, her speed per hour averaging 22.35 knots. The total distance covered was 3,065 knots, and the passage lasted 5 days, 17 hours and 8 minutes.

ANNUAL REPORT.

The annual report of the Secretary of the Navy for the year 1897 contains the following:

"The present effective fighting force of the navy consists of 4 battle ships of the first class, 2 battle ships of the second class, 2 armored cruisers, 16 cruisers, 15 gunboats, 6 double-turreted monitors, 1 ram, 1 dynamite gunboat, 1 dispatch boat, 1 transport steamer and 5 torpedo boats. There are under construction 5 battle ships of the first class, 16 torpedo boats and 1 submarine boat. There are 64 other naval vessels, including those used as training, receiving and naval reserve ships, tugs, disused single-turreted monitors and some unserviceable craft. There is, further, the auxiliary fleet.

"It appears from the report of the Bureau of Yards and Docks that today the most urgent need of the naval service is an increase of docking facilities. Of the eleven government docks—nine on the Atlantic and two on the Pacific coast—three were designed to accommodate battle ships of the first class, one at New York, one at Port Royal, S. C., and one at Bremerton, Wash., on Puget Sound. But the dock at New York has been for six months, and is likely for three months more, to be undergoing repairs, and at the dock at Port Royal there is not only an insufficiency of water, but the cross-section of the dock is too small to safely admit battle ships with bilge keels affixed. A modern ship should be docked every few months, and owing to the above condition of the docks on this coast, it was necessary to send the Indiana to Halifax in August last for this purpose. On the Pacific coast there is but one dock of sufficient size to dock a modern battle ship. This is on Puget Sound, 900 miles from San Francisco. Access to it is through a narrow channel 20 miles long, one side of which is in possession of a foreign country. This lack of docking facilities should be remedied at the earliest possible moment.

"It should be said that at Newport News are all the requisites for a dock of the largest size. There is no lack of water as in the approaches to Norfolk. The Newport News Ship Building & Dry Dock Company have suggested their willingness to construct a dock of the very largest capacity, and to be governed by the department as to its construction, size, materials and character, beginning the work at once and completing it in a year, provided it can be assured of some agreement for its use by the government.

"Also the International Dry Dock & Construction Company of New York—and it is claimed that the nature of the soil at the navy yard there is not well adapted to the maintenance of a dock for vessels of great weight—propose to construct and also maintain a steel floating dry dock of the pattern recommended by the board, 550 feet long, of over 15,000 tons capacity, costing, they estimate, a million and a half dollars, and to complete the same ready for service in nine months, if insured by the government 6 per cent. interest on the amount invested for twenty years. For this remuneration they propose, in addition, to allow the use of the dock for one hundred days each year, and at their own expense to dock and discharge vessels of the government within that time. Their proposal includes the free use and possession of the dock by the United States for one hundred days each year in peace, and its entire use in war on terms to be mutually agreed upon, or, failing that, to be fixed by arbitration.

"The propositions of these two companies are submitted for consideration, as they offer the government an opportunity to enter upon the plan of constructing docks in cooperation with private establishments, if Congress shall deem such a course desirable.

"It is possible that the same thing can be done at San Francisco, where the low water at Mare Island is a present embarrassment in the way of constructing at the navy yard there a dock of sufficient size for our largest vessel.

"During the past year the contract for armor for the Iowa was completed by the delivery of a balance of 265 tons.

"Since October 1, 1896, 2,691 tons of armor for the Kearsarge and Kentucky have been delivered in instalments as required by contract. There remain yet to be delivered 2,876 tons. The total amount of armor delivered prior to October 1, 1896, was 19, 283 tons, making the total amount of armor contracted for in this country since this industry was domesticated 25,115 tons."

Secretary Herbert thinks that the average citizen can get a better idea of the relative strength of the world's navies by regarding the "total displacement" expressed in tons. Taking the three classes of vessels, battle ships, armored cruisers, and cruising vessels, which are the real fighters of the navies Mr. Herbert gives the following figures as best expressing the relative strength of the navies of the world. The figures express the total displacement of the aggregate, without reference to the numbers of vessels in each and all classes named:

Great Britain	1,415,277	United States	216,765
France	644,537	Germany	190,061
Russia	348,266	Japan	130,057
Italy	271,039	Spain	142,282

With the aid of this table, the elaborate mass of figures given by Secretary Long can be studied more intelligently.

VISIBLE SUPPLY OF GRAIN

As compiled for The Marine Record, by George F. Stone, Secretary Chicago Board of Trade.

Cities Where Stored.	Wheat. Bushels.	Corn. Bushels.	Oats. Bushels.	Rye. Bushels.	Barley. Bushels.
Buffalo	1,513,000	1,806,000	993,000	332,000	2,029,000
Chicago	5,287,000	17,875,000	1,671,000	770,000	801,000
Detroit	239,000	109,000	10,000	16,000	85,000
Duluth and Superior	3,824,000	940,000	805,000	840,000	533,000
Milwaukee	203,000	248,000	65,000	22,000	54,000
Montreal	71,000	87,000	146,000	24,000	25,000
Oswego	10,000	100,000	.....	.....	51,000
Toledo	436 000	631,000	415,000	40,000	.....
Toronto	32,000	.....	4,000	.....	55,000
On Canal	324,000	370,000	595,000	50,000	441,000
On Lakes	2,084,000	2,882,000	1,564,000	142,000	1,137,000
On Mississippi	55,000	76,000	.....	35,000	.....
Grand Total	33,656,000	42,058,000	15,261,000	3,595,000	5,891,000
Corresponding Date, 1896	58,914,000	18,228,000	12,474,000	2,559,000	3,557,000

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific slope.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN LAKES AND RIVERS—WISCONSIN.

TREASURY DEPARTMENT,
OFFICE OF THE LIGHT-HOUSE BOARD,
WASHINGTON, D. C., Nov. 26, 1897.

SUPERIOR PIERHEAD RANGE REAR POST LIGHT.—Notice is hereby given that, on or about November 30, 1897, a temporaryfixed white lantern light will be established near the inner end of the south pier at the southeasterly entrance to Superior Bay, westerly end of Lake Superior. The light will be shown from a pole, 55 feet above lake level, about 1,650 feet in rear of Superior pierhead light, and with that light will form a range for approaching the piers from the lake.

SUPERIOR BAY ENTRANCE RANGE POST LIGHTS.—On the same date these two fixed white lantern lights on Wisconsin Point, forming a range for entering between the piers at the southeasterly entrance to Superior Bay, will be discontinued.

By Order of the Light-House Board:

W. S. SCHLEY, Captain, U. S. N., Chairman.

LIGHT-HOUSE ESTABLISHMENT,
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 10TH DIST.,
BUFFALO, N. Y., November 30, 1897.

The keeper of the light-house at Thirty Mile Point, Lake Ontario, reports that there has drifted ashore near the light-house something that is apparently a pontoon or other similar structure. It is of iron, about eight feet in diameter and forty or fifty feet long, and is covered with oak planking. It has a heavy chain and anchor attached. It lies on the bottom in two feet of water, about a half a mile east of the light-house.

THEODORE F. JEWELL,
Commander, U. S. N.,
Inspector 10th L. H. District.

WINTER LAKE.

A few hours of cold weather will close navigation on Portage and Torch Lakes. The Jenks Co. has had tugs running through Torch Lake canal for several days, at a cost of $100 per day, to keep the channel open for the steamers Runnells and Black Rock. There is six inches of ice in Torch Lake cut and three inches in Portage Lake at Houghton and Hancock. With five inches between the Atlantic mine dock and the canal, navigation is rendered impracticable in that part of the channel. The tug William B. Cassell is on the way here from Duluth to aid the steamer Runnells, ashore on Point Abbaye.

CLOSING OF ST. MARY'S FALLS CANAL.

St. Mary's Falls canal will remain open a week or ten days longer. The time of closing the canal for the season will depend altogether on the number of boats that are to pass through after the first of the month. Last year, when freight rates were low, the canal closed on Dec. 11. Owing to the high freight rates this year, many boats, nearly all loaded with coal, are going up, and if the high rates continue, the season of navigation may last even to a later date than in 1896. The probabilities are that St. Mary's Falls canal will be closed by Dec. 4 or 5, in order to expedite work on the new guard gates, as by that time it is thought that the Canadian canal will be able to accommodate all the boats during the balance of the season.

CHARTS PUBLISHED

BY THE U. S. HYDROGRAPHIC OFFICE, GULF AND RIVER ST. LAWRENCE AND THE GREAT LAKES, SINCE DECEMBER 15, 1896.

Number of Chart.	Title.	Authorities, Surveys, Etc. Date of Publication.	Date of Last Correction.	Scale: 1° or 1 mile in inches.	Size of Border in Inches.	Price.
1580	North America, United States: Lake Michigan, Green Bay and Approaches. (Follows 1475).	Compiled from the United States Lake Survey Charts. Published December, 1896.	1896	M.=0.4	35.5x39.7	$1.25
1477	Lake Erie and Lake Ontario (and South part of Lake Huron).	From latest information. Published July, 1895. [Extensive corrections in hydrography and topography, north shore Lake Erie, in Outer Bay of Long Point].	III. 1897	D. Lat.=5.8	23.4x23.7	.75
1585	The World. Magnetic Variation and Dip for the Year 1897	.....	1897	10 Long.=1.2	23.1x44.9	.50
1600	Classification of Clouds for Weather Observers	.....	1897	.....	21.7x20.2	.40
1472	North America, Canada: Lake Huron, North Channel, Little Current to Mississauga Strait. (Follows 1457).	From Canadian Government Surveys in 1885 to 1890. Published May, 1897.	1897	M.=0.75	28.3x46.5	1.25
1464	North America, Canada: Lake Huron, Clapperton Channel	From a Canadian Government Survey in 1886. Published June, 1897. [New hydrography in Mudge Bay and vicinity, and off the west coast of Clapperton Island].	IV. 1897	St. M.=1.66	12.3x11.6	.25
1582	North America, United States and Canada: Lake St. Clair and St. Clair and Detroit Rivers. Plans of—	Compiled from the United States Lake Survey Charts. Detroit River between Bar Point and Mamajuda Light-house from a Survey in 1894, by the officers of the U. S. S. Michigan.	1897	M.=0.6	26.8x38.4	
	The St. Clair Flats	.....	1897	M.=1.5	15.5x16.5	1.00
	Port Huron	.....	1897	M.=1.5	4.3x 6.8	
	St. Clair River. Approaches to Marine City	.....	1897	M.=1.5	3.7x 7.2	
	St. Clair River. Fromefield to St. Clair	.....	1897	M.=1.5	4.7x11.5	
	Detroit River. Between the City of Detroit and Lake St. Clair. (Precedes 1480).	.....	1897	M.=1.5	8.7x19.9	

MARITIME LAW.

THE ST. PAUL.

MERRITT et al v. THE ST. PAUL.
SAME V. INTERNATIONAL NAV. CO.

(*District Court, S. D., New York. July 24, 1897.*)

Considering all the circumstances, and after referring to the cases cited by counsel, and finding, for the reasons stated below, that 1.45 per cent. on the value of the cargo will be its proper share of the whole award, I have come to the conclusion that $160,000, including all the cash outlays, will be a proper award for the whole service. This award I should consider insufficient had the services been of long duration, or accompanied by any considerable danger to the persons or the property of the salvors. But these dangers were avoided by the favorable weather during which all the preliminary operations were performed, including the lightening of the ship to the utmost extent possible, consistent with her stability, by unloading all the cargo and by removing all her ballast that could be safely spared. No previous salvage task has equaled this in magnitude, and the ship was saved with comparatively small damage. The amount awarded on the other hand, though not large, if measured by a percentage upon the values involved, seems to me to be a sufficient recognition of the importance of the services of the salvors, the necessities of the ship and the success achieved; and also to be sufficiently liberal to serve as an inducement to the maintenance, in the most efficient condition, of such wrecking companies as were here employed, without which the safety of the St. Paul could not have been so completely effected, nor could other steamers of her class, when stranded, be saved from great injury, and perhaps total loss.

2. CARGO.—The circumstances of the present case, as respects the limited extent of the danger that was common to both ship and cargo and the consequent limited community of interest between them; and as respects the rights of cargo owners to a speedy delivery of their goods on a stranding like this, so near the close of a voyage, and the corresponding duty of the master as their representative, are almost identical with the circumstances in the case of L'Amerique, 37 Fed. 835, in which this court held, upon consideration at length, that the community of interest, and consequently the community of burden or expense, as between ship and cargo, were severed from the time they parted company. The unloading of the vessel being indispensable for the purpose of lightening her in order that she might be got off, and equally necessary for the safety of the cargo, this part of the salvage work was there regarded as done in the common interest and for the common benefit; and, therefore, under the adjudged cases, required to be shared in common; but it was held that in circumstances like the present, where the cargo has been unloaded for the purpose of making delivery of it to the owners by other means, there is no longer any community of interest between ship and cargo in the subsequent expenses of getting the ship afloat. The cargo has no interest in that work, not only because the ship is no longer needful to the cargo, but because it is not intended to make any use of the ship for the further prosecution of a joint adventure. The separation of interests is, therefore, complete from the time the ship and cargo part company.

In cases like the present, it is obvious from the first that the necessities of the ship and cargo are wholly different. The work of relieving the ship is likely to be long, difficult and doubtful in result; relief for the cargo comparatively quick and sure. The dangers to the ship are not only much greater, but for the most part different in kind, from the danger to the cargo; and the means available and the measures required for the relief of each are so different, that no real community of interest exists between them beyond the time when the cargo is unloaded. After that is finished and the cargo is in safety, the principal and most difficult part of the work of getting the ship off still remains to be done. To hold the cargo chargeable for the expense of that work when it has no interest in the result of the work, would be an arbitrary appropriation and sacrifice of the cargo for the ship's use, with no benefit or intended benefit to the cargo, present or prospective; a sacrifice contrary to common reason and equity and to the recognized mutual rights of ship and cargo. See L'Amerique, supra.

If the stranding is light and the ship can be got off and is got off with the cargo on board, no doubt the whole service is a common charge. Reasonable efforts to that end, according to the circumstances, or if those efforts are not successful, then the unloading of cargo, which becomes equally indispensable to the safety of each, should be at the common charge pro rata, because wholly incurred for the common benefit. Beyond that the common charge should cease.

In deciding the case of L'Amerique, the adjudged cases up to that time were considered. I find no later cases holding differently under similar circumstances; while in the City of Worcester, 42 Fed. 916, a similar case, Judge Shipman made the same separation of interests between ship and cargo, and awarded about 1.2 per cent. on the value of the cargo, and about 13.4 per cent. upon the value of the ship, and this was affirmed on appeal. 45 Fed. 119. In the case of Pacific Mail S. S. Co. v. New York, H. & R. Min. Co., 20 C. C. A. 349, 74 Fed. 564, also a similar distinction was made on appeal as respects specie removed before the salvage operations began; although in this court it was considered that the specie in that case ought to be held for its proportion of the salvage service in pumping out and raising the ship, because that service was made necessary by a previous voluntary act of sacrifice for the common benefit of the ship and specie alike, and because the salvage operation merely diminished the general average burden which the previous act of sacrifice had already imposed upon the whole cargo while the specie was still on board; the same as in the case of salvage services rendered to a ship and her cargo which had been voluntarily stranded for the common safety, or in the case of goods necessarily jettisoned, and subsequently rescued by salvors.

The decisions above cited must be followed here. They require the pro rata charge to be limited to the period during which the salvage service was rendered for the common benefit. This was for a period of four days, viz.; up to 10 a. m. of Wednesday, the 28th of January, when the unloading was completed. The whole salvage service occupied 11 days. The cargo is evidently not entitled to exemption for the first day's work, during which the passengers and mails were removed, and efforts made to move the ship without unloading. The removal of the passengers was the first duty of the master as the representative of the whole adventure, and that must be at the charge of the whole, and the efforts to move the ship before unloading were in the common interest.

No authorities, moreover, warrant treating the salvage of the ship and the salvage of the cargo as two distinct operations from the first; and exigencies of the ship would not permit two wholly independent salvage operations at the same time. There was but one salvage operation in fact; and, as I have said, there is no authority for severing it by construction, so long as the work is carried on for the common benefit.

Nor do the authorities justify any distinction in the proportion charged against different parts of the cargo. This point was well considered by Sir R. Phillimore in the case of The Longford, 4 Asp. 385, and any such differences, even in favor of specie, were disallowed as illogical and liable to lead to great difficulties and embarassments.

The proctors of the libelants and of the shipowners have stipulated that $1,500,000 may be taken as the value of the vessel. As the proctors of the cargo owners, however, do not agree to this, I cannot accept it in fixing the pro rata share of the cargo; and upon the other evidence I think the ship should be considered worth $2,000,000. Her pending freight was $16,902.

For the first four days' work, therefore, the share of the cargo will be a little less than two-elevenths of the whole award of $160,000; or more accurately, 1.45 per cent. on the cargo values. I therefore fix upon that percentage (1.45) as the proportion chargeable upon the cargo, amounting to $28,987.52, for which a decree may be entered in the libel in personam, with cost; and in the libel in rem, a decree may be entered for the residue of $131,012.48, with costs.

SHIPBUILDING.

The following table shows the number of ships, barks and barkentines built in the United States for every fiscal year ending June 30, since 1845:

1845	124	1863	97	1881	29
1846	100	1864	112	1882	31
1847	151	1865	109	1883	33
1848	254	1866	96	1884	24
1849	198	1867	95	1885	11
1850	247	1868	80	1886	8
1851	211	1869	91	1887	7
1852	255	1870	73	1888	4
1853	270	1871	40	1889	1
1854	334	1872	15	1890	10
1855	381	1873	28	1891	13
1856	306	1874	71	1892	8
1857	251	1875	114	1893	8
1858	122	1876	76	1894	3
1859	89	1877	71	1895	1
1860	110	1878	81	1896	2
1861	110	1879	37	1897	2
1862	60	1880	23		

MICHIGAN SHIPBUILDING INDUSTRY.

Labor Commissioner Cox, of Michigan, recently appointed a special canvasser to investigate the 19 shipbuilding plants in the state of Michigan. The report shows that Michigan occupies one of the foremost places in that industry, and the combined value of the shipyards runs up into the millions.

The largest is F. W. Wheeler & Co.'s plant, at West Bay City, which was established in 1877 and is now valued at $500,000. They have built 128 vessels, 32 being of steel. When running at full capacity they employ 2,500 men, whose wages average $2 per day each.

The Detroit Dry-Dock Co. has constructed 125 boats, many of them very valuable. They employ 200 persons and have a monthly pay roll of $50,000.

James Davidson's yard, at Bay City, where only wooden boats are built, was established in 1874. Ninety vessels, valued at $7,000,000, have been launched from this yard. Twelve hundred men are employed when running full capacity, and the monthly pay roll is $30,000. Twenty-five of these boats belong to Mr. Davidson.

Alex. Anderson's yard, at Marine City, started in 1890, is valued at $200,000 and employs 150 men. Anderson has turned out 12 boats.

Marine Transit Co., at Marine City, since its organization, in 1889, has built three boats, all of which they own. Besides building these boats a large repairing business goes on during the winter months. They employ 60 men.

Langell & Sons, of St. Clair, have, since 1863, turned out 29 vessels, valued at $1,275,000. They employ 150 men.

Manistee Shipyard Co. employ 25 men and do a general repair and rebuilding business.

Abram Smith & Sons, Algonac, in business since 1865, have built 50 vessels.

A MINIMUM FREIGHT RATE.

Mr. A. A. Parker, of the firm of Parker & Millen, Detroit, was quoted the other day as saying: "It has arrived at a period when the Lake Carriers' Association must do something toward regulating freight rates. I have been in Buffalo, Cleveland and Chicago recently, and vesselowners and members of the association are more or less of the opinion that something should be done. To accomplish this end our by-laws must be amended, as the association is not allowed to do anything about freight rates. I wish it understood that I do not mean to say that the Lake Carriers will want to dictate the rates on any commodity so as to make them arbitrary, but just to establish a minimum rate at the annual meeting, and see that every one sticks to it.

"The shippers would like it much better, I am sure. Now, take for instance the recent predicament the coal men were in. In the spring plenty of coal was in sight and the vesselmen bid down as low as 20 cents to Lake Superior. Then came the strike, everything went dead, and then the coal all came in a lump, making a high rate for the boats, but see what it does to the operators; they have to dig down in their pockets and make up a difference between 20 cents and 75 to 85 cents per ton, as the freights prevail. Now, had the Lake Carriers' Association, in their meeting last spring, been enabled to fix a minimum coal rate, the shippers could have sold coal on that basis and not be suffering as they are now, and so with iron ore, lumber and any other coarse freight. I tell you it will be a grand thing, and is the only way to solve the present demoralization of the freight business. Let the bylaws be amended to allow us to protect ourselves, not to be arbitrary, and every shipper as well as vesselowner on the lakes will be benefited."

A PLEASURABLE TOUR.

The steel yacht White Ladye has been sold to John Lawson Johnston for $56,000. The vessel cost to build $200,000.

The former owner refused $110,000 for the White Ladye a few years ago, and the vessel was chartered to the late Ogden Goelet, of New York, who used her until his steam yacht Mayflower was about completed. Mr. Goelet, who had possession of the White Ladye for about four years, is understood to have paid something like $5,000 yearly for her hire alone.

The White Ladye is a sumptuous steam yacht of about 312 tons register, and is fitted in mahogany, rose-colored silk, white and gold enamel, and has electric fittings throughout.

Mr. Johnston said: "I shall take my family on a voyage to the Mediterranean in January, and after the spring season I shall go to Quebec and Montreal, and shall make a tour of the lakes."

MARINE RECORD

ESTABLISHED 1878.

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CLEVELAND, O., DECEMBER 2, 1897.

CONGRESS convenes Dec. 6. There are river and harbor improvements to be carried out this winter and the lake ports deserve their share.

THE thanks of THE RECORD are due the Hydrographic Office, Bureau of Navigation, Department of the Navy, Washington, D. C., for a copy of the North Pacific Pilot Chart for December. J. O. Craig, Commander U. S. N. Hydrographer, is keeping well in advance of the work of his predecessors as the latest issue of the Pacific Chart amply testifies.

IT seems to be in order these times to criticize the administration of the steamboat inspection service, its rules, regulations and enactments. Turning to Sec. 4491, we resuscitate the following arbitrary and ignorant assumption: "No kind of instrument, machine, or equipment for the better security of life, provided for by this title shall be used on any steam vessel which shall not first be approved by the board of supervising inspectors, and also by the Secretary of the Treasury." "Oh ye Gods and little fishes." No machine or equipment dare be used for the security or preservation of life without the august assent of an almost obsolete body who meet in session profound but once a year. Well! any owner or master who wishes to add equipment for the better security of life would, we think, be well advised by starting to use same at the earliest possible moment without first getting the approval of the Secretary of the Treasury or the Board of Supervising Inspectors. There are other sections better observed in the breach than the observance thereof. As for instance, Section 4488 * * * "Every vessel navigating any of the Northern or Northwestern lakes, shall have the life-boats required by law, provided with suitable boat-disengaging apparatus, so arranged as to allow such boats to be safely launched while such vessels are under speed or otherwise, and so as to allow such disengaging apparatus to be operated by one person, disengaging both ends of the boat simultaneously from the tackles by which it may be lowered to the water." The laws of the Medes and Persians could not be altered but the Board of Supervising Inspectors of Steamboats with the Secretary of the Treasury thrown in for a wedge, ought to rescind or enforce a score or two of these charming enactments. There is no apparatus of the above description known in the lake trade, and anyway it looks too much like a bid to foist some would-be inventor's notion on lake shipping, bolstering it up by quoting section 4488.

We will not annoy our readers by quoting any more of these strange sections at this time, but as someone says, "await a more favorable opportunity."

THE CHICAGO "I WILL."

Chicago's campaign toward securing at the hands of the national government the deepening and widening of the channel of the Chicago river has assumed a definite form. Every Congressman from the county of Cook pledged himself to battle for a government appropriation and a re-survey of the waterway on a basis of a depth of 21 feet.

The war is now on and the early days of the coming session of the national Congress will find a petition, delegated under the authority of the council of the city, tapping at the gates of the capitol under the escort of a special committee. The committee which will undertake the first step in the securing of the improvement which means so much to the life of Chicago's marine interests, was named by Ald. Barry, chairman of the council committee on harbors and bridges. The personnel of the body intrusted with the direct conduct of Chicago's claim includes as chairman Ald. Miller; Mayor Harrison, Commissioner of Public Works McGann, Congressmen Lorimer and White, Ald. Francis, Coughlin, Kent and Beilfuss, and Capt. Dunham, J. F. Tracy and ex-Congressman Adams, of the River Improvement Association.

A letter from Congressman Mann, who is detained in Washington, was fired as a starter toward releasing enthusiasm and causing subsequent action. The letter from the Cook county representative was to the effect that the national government stood ready to lower the channel of the muggy river, but that the two tunnels interfered with all progress along this line; that the national authorities felt much compunction in ordering the destruction of these obstacles and thus action would be delayed until Chicago took upon herself the duty of removing these obstructions.

The letter was promptly filed by motion of Ald. Coughlin, while Commissiouer of Public Works McGann, pointed out that the absent Congressman needed some coaching as to the legislation governing the stream.

The views of the Congressmen present were then elicited as the first step in the proceedings. Said Congressman Lorimer:

"No one can say what the national government's action toward the Chicago river will be. The national government can relieve all the present trouble and Chicago must ask Congress to take the initial step toward securing such legislation. Don't go knocking at the doors of this body with the idea that you will get everything you ask. On the other hand, do not feel that you will get nothing. With the proper efforts I believe that the city can get what she wants. Send a delegation to Washington bearing a memorial which shall contain hard, cold facts of all improvements needed. The first step in the matter depends upon Chicago alone. She must do her part."

Congressman Belknap added his pledge to the conference. "We almost unexpectedly, secured an appropriation of $700,000 from the last Congress for the dredging of the river," he declared. "The present movement, by this augury, should meet with success. Let the council send a petition to Congress, asking the latter body to authorize a new survey on a basis of a 21-foot depth instead of the 16-foot depth upon which was based the recent report of Government Engineer Marshall. This memorial having all the strength of Chicago behind it will add much weight to the mission, for which her Congressmen will then employ their efforts.

Congressman White asked that the people let their representatives know their wishes in the matter and that then the former would begin their fight and employ every endeavor toward securing proper action from both houses at Washington. Congressman Foss added his seal to the question by mixing in a touch of Cuban sympathy.

"I shall work for this movement to the end," declared the representative. "If plans are drafted for the altering of the river channel to such a depth that we can sink the whole Spanish navy in it, I shall champion the cause. I believe that a pamphlet should be prepared," declared Mr. Foss, branching forth on a new tack. "In this documenl let the volume of the commerce of the Chicago river and its importance, be set forth. By this means we can educate the members of both houses of the national legislature to a proper and succinet understanding of the justice of Chicago's claims. Before you enter your formal demands at Washington let a plan be agreed upon; let every want be definitely set forth, and from the facts an approximate cost drawn."

Congressman-elect Boutell attracted more than usual attention. When he addressed the gathering of men who have fought for the preservation of Chicago's marine interests the ante-room of the council chamber was packed to the doors and faces were poked through every space of entrance.

"I speak as yet," began Mr. Boutell, "from the standpoint of a property-owner, a taxpayer and a citizen interested in advancing Chicago's best interests. The improvement of the Chicago river appears to me as a matter demanding speedy action because of two main points. In the first place the altering of the channel is absolutely demanded by our commercial necessities. Commerce is now leaving Chicago. Other ports on the lake have river and harbor depths which can accommodate vessels which are prevented from effecting landings in Chicago. We must improve the river to preserve our commerce.

"The national government has control of all navigable waters and the improving of one means the aid of the other. The present plans for the improvement of the Chicago harbor are similar to those adopted in 1870. There is little change. Let us look to the future. Let us decide, as a city, on one definite plan that shall answer during future years and then present a claim, the result of united action, to the houses at Washington."

Mayor Harrison asked that caution be exercised in the formulating of a plan which shall embody all Chicago's wants on the question of deepening the river.

"We should look far into the future and the demands that may then arise," declared his honor. "If we do not, in thirty years a depth of twenty-one feet may present the same disadvantages as those presented by a sixteen-foot depth at the present day."

The special csmmittee headed by Ald. Miller, will devote its efforts towards the framing of a memorial setting forth Chicago's wants in so far as the river improvement is concerned. This phase of the question will demand immediate attention, the question of a government appropriation being waived until later.

City Engineer Ericson is busily engaged on his plans for lowering the sewers and the removal of the center-pier bridges in favor of those of the modern bascule variety. Until the report of Government Engineer Marshall is in his hands the city engineer cannot fully complete his report, which will be delivered to the council committee.

"The undermining of the foundations and the consequent ruin of the buildings along the channel of the river in case the bed is lowered can be avoided," said Mr. Ericson, in speaking of the question which has presented itself to citizens as one of the greatest obstacles to a successful completion of the scheme. "New foundations can be placed under the structures easily. I shall devote a formal report on that question when the tunnel matter is disposed of."

Chief Engineer Randolph of the drainage board also asserts that this question can be successfully answered.

"Some years ago a new foundation was placed under the Washington monument. The present problem suggests phases very simple of solution in comparison with the former project. The people need not worry. The question of new foundation adapted to the new channel will solve itself at the proper time."

LAKE FREIGHTS.

There is a better demand for grain carriers now than there has been at any time this season, and rates are climbing up steadily. Ft. William shippers are still bidding 5 cents for wheat tonnage and owners are confident of getting 4 cents out of Duluth, and 2¾ cents has been bid on corn from Chicago, though 2¼ cents prevailed during the early part of the week and the same figure on wheat. 2½ cents has been the regular quotation on corn with 3 cents paid on one cargo.

On coal, 60 cents, Buffalo to Chicago has been the going rate.

Ore shipments are about done for the season as the ore is freezing in the pockets. The shipments from Duluth, Superior and Two Harbors are 5,560,000 tons. This year Mesaba shipments were 2,376,063 tons and last year they were 1,998,935 tons. The increasing size of lake boats is strikingly shown by the fact that last year 903 boats carried less ore than did 617 this year.

ASHTABULA COMMERCE.

The receipts of ore at Ashtabula for the season of 1897 have passed the 3,000,000-ton mark, surpassing all records ever made in one year by any ore receiving port. The receipts for November were 179,389 tons, which swelled the total for the season to December 1 to 2,984,389 tons, making the total 3,002,570 tons.

The coal shipments for November were 177,348 tons and the total shipments for the season will greatly exceed those of the best previous seasons, owing to the greatly increased facilities for loading.

DUTIES OF STEAMBOAT INSPECTORS.

The following section from the revised statutes shows the duties of the officers of the U. S. Steamboat Inspection Service, if any neglect or incompetency is believed to exist, and also how investigations shall be conducted:

"SECTION 4407.—Whenever a supervising inspector ascertains to his satisfaction that any master, mate, engineer, pilot, or owner of any steam vessel fails to perform his duties according to the provisions of this title, he shall report the facts in writing to the board of local inspectors in the district where the vessel was inspected and belongs; and, if need be, he shall cause the negligent or offending party to be prosecuted; and if the supervising inspector has good reason to believe there has been, through negligence or any other cause, a failure of the board which inspected the vessel to do its duty, he shall report the facts in writing to the Secretary of the Treasury, who shall cause immediate investigation into the truth of the complaint and, if he deems the cause sufficient, shall remove any officer found delinquent.

SEC. 4450.—The local boards of inspectors shall investigate all acts of incompetency or misconduct committed by any licensed officer while acting under the authority of his license, and shall have power to summon before them any witnesses within their respective districts, and compel their attendance by a similar process as in the United States Circuit or District Courts; and they may administer all necessary oaths to any witnesses thus summoned before them; and after reasonable notice in writing, given to the alleged delinquent, of the time and place of such investigation, such witnesses shall be examined, under oath, touching the performance of his duties by any licensed officer; and if the board shall be satisfied that such licensed officer is incompetent, or has been guilty of misbehavior, negligence or unskillfulness, or has endangered life, or willfully violated any provision of this title, they shall immediately suspend or revoke his license."

LAKE WEATHER.

The winter season in the lake region begins anywhere from the latter part of November to the middle of December. In exceptionally mild and open seasons, such as 1879-80, cold weather and severe storms may be deferred until the latter part of December, and boats may ply on the lower lakes without hindrance. On the average, cold weather sets in during December, and continues, with greater or less interruptions, until the following spring. Snow storms are quite frequent on the south shore of Lake Superior, especially to the eastward of Keweenaw Point, and on the St. Mary's river. Following down the western shore of Lake Michigan, from the Straits of Mackinaw, the number of such storms decreases, reaching a minimum at Chicago, where the average is but seven per month. The number on the eastern shore of the lake is slightly greater than on the western shore, and this remark also applies to Lake Huron. The region of the least snowfall on the latter is in the neighborhood of Port Huron. There is less snow on the southwestern shore line of Lake Erie than elsewhere on the lake, but the difference is not great. Generally it would appear that upon the lakes whose longer axes run in an easterly and westerly direction there is about as much snowfall on one side as upon the other. Lake Superior is probably an exception to the rule, since the snowfall at Duluth and Port Arthur is considerably less than eastward of Keweenaw Point.

LOSS OF THE PAIGE.

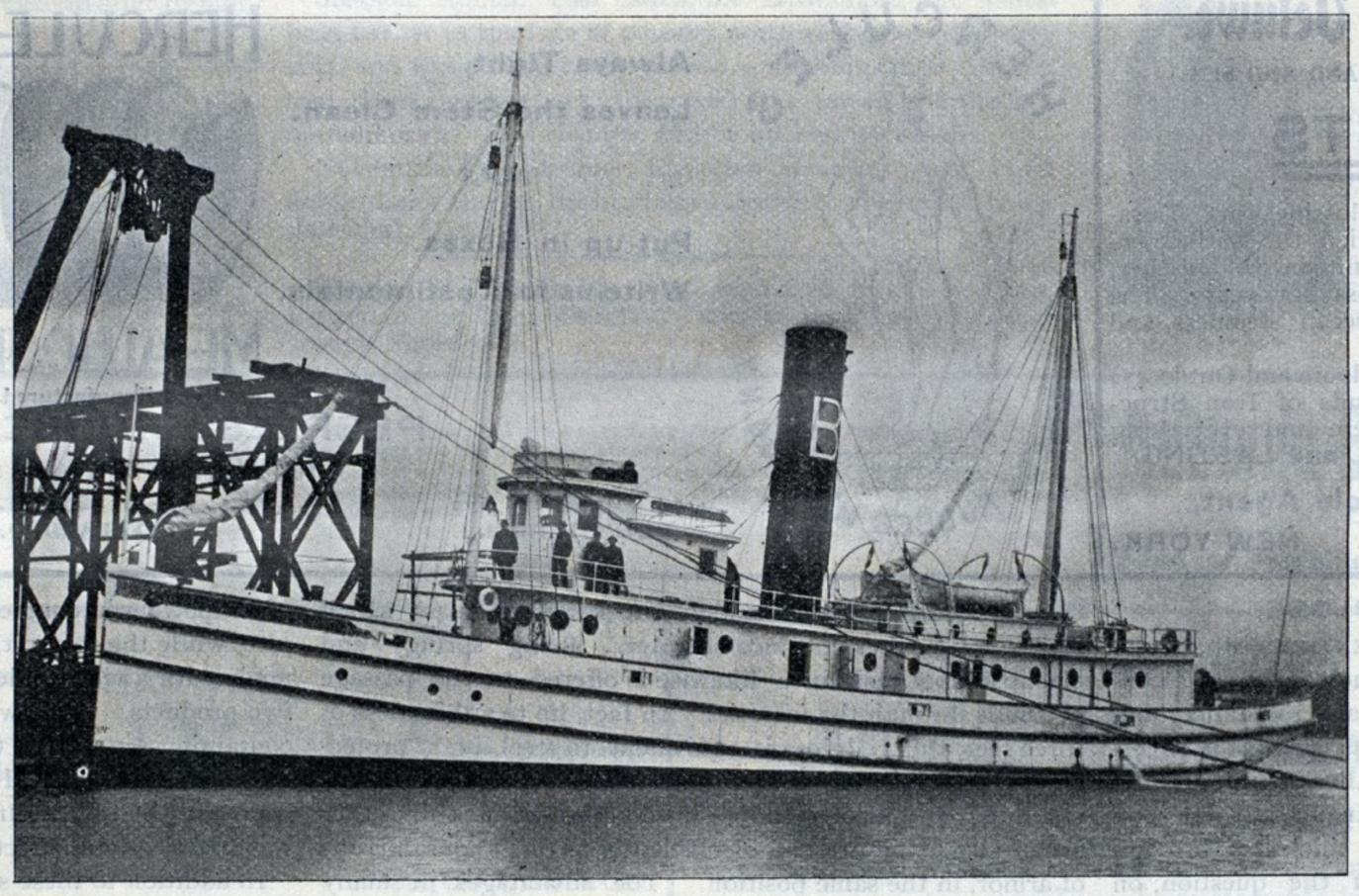
The Joseph Paige left Marquette on Tuesday in tow of the steamer H. B. Tuttle, bound for Detroit with a cargo of iron ore. She was commanded by Capt. Steven Rose. The wind, which had been blowing from the northwest all day, during the night rose to a gale, and the two boats, heavily incased in ice from the flying spray, labored heavily in the big sea which was running on Lake Superior. The gale at last reached such strength that the Tuttle was unable to make any headway. The two boats were being driven towards the shore and shortly after midnight the crew of the Tuttle were compelled to cut their consort adrift, in order to save their own boat from going on the beach.

Abandoned on a lee shore, and having only her shortened outfit of sails to help her, the crew of the Paige were unable to work their vessel out into the lake. The drifting schooner was sighted by the Vermillion life-savers and with their surfboat and other apparatus they followed her along the shore until she stranded. They were able to bring all hands in safety ashore.

The Paige was owned by John F. Wedow, of Cleveland. Her captain and crew hailed from Marine City. The vessel was built in 1878, measured 625 tons and was 192 feet long by 32 feet beam. She was valued at $16,000 and rated A2 in Inland Lloyd's vessel register for 1897. Her cargo of iron ore was insured for its full value, and there was $12,500 on the hull, fully covered. The H. B. Tuttle reached Sault Ste. Marie in safety.

LAUNCH OF THE AUSTRALIA.

It would seem that the Corrigan firm are following the lead of the Cunard line across the Atlantic in naming their boats, both Capt. James and John wind up with an A so, now comes the Australia launched yesterday at South Chicago. She is a duplicate of the Amazon, only that she has two feet more beam, and will carry 150 tons additional cargo. This makes her the largest carrier now afloat, but the record will be eclipsed next spring. The christening was performed by Miss McKinnie. The Australia is owned by Capt. James Corrigan, of Cleveland, the pioneer of large tonnage.



TUG WILLIAM H. BROWN.

Keel laid Sept, 2nd, launched Oct. 21st, cleared for New Orleans, La., fully completed Nov. 11th, built by the F. W. Wheeler & Co., Ship and Engine Builders, West Bay City, Mich., fitted with electric lighting plant, marine telegraph signals, cold storage and refrigerators, towing machine, steam windlass and capstan, steam steerer, distilling plant, etc.

OIL ON TROUBLED WATERS.

Lighthouses in Denmark are supplied with oil, which is pumped on the waves during a storm. This explains the fact that two or three vessels are always to be seen rouud each lighthouse in rough weather.

OFFICERS REVENUE CUTTER GRESHAM.

The revenue cutter Gresham will go into winter quarters at Milwaukee, this week, and in this connection attention is called to the frequent and distant changes which the officers in the revenue service, as well as the navy, are called upon to undergo in the line of duty.

Taking the small cutter Gresham, it is found that Lieut. C. E. Johnson is transfered to the revenue cutter Dexter, stationed at New Bedford, Mass.; Lieut. P. H. Uberroth and 1st. Asst. Engineer Herbert Spear to the revenue cutter Grant, stationed at Port Townsend, Wash.; Lieut. Randolph Ridgely to the revenue cutter McCollough, stationed at San Francisco; 2d. Asst. Engineer R. E. Wright to the revenue cutter Woodbury, stationed at Portland, Me.; Lieut. F. S. Van Buskerck to the revenue cutter Dallas, stationed at Boston, Mass.

TREASURY DECISIONS.

Rule for marking cubical capacity on lifeboats not retroactive.

TREASURY DEPARTMENT, September 13, 1897.

SIR: This Department is in receipt of your letter dated the 7th instant, transmitting an application by the Jenks Shipbuilding Co., for relief in the matter of a penalty for one thousand dollars ($1,000), reported to have been incurred through a violation of rule 3, section 13, G. R. R., approved February 15, 1897, in the case of the steamer Linden "for not having capacity marked on lifeboat and raft."

The applicants state as follows:

"When the steamer was inspected in the spring, we were not aware this was one of the regulations of the department, but later on, learning that such was the case, we instructed the captain to attend to the same; and on August 31, we wrote him at Sault Ste. Marie, as the steamer had not been at this port for some time and we did not have a chance to make a personal inspection, and to show you that it was not an intentional violation, we herewith quote you from this letter of August 31, 1897."

Your report indicates that there was no wilful intent to violate the law.

The vessel was inspected before the rule in question went into effect, and the Department does not consider that the regulation applies in such cases.

The fine reported to have been incurred is hereby remitted.

Respectfully yours, O. L. SPAULDING,
Assistant Secretary.

Collector of Customs, Port Huron, Mich.

Material for Construction and Repair of American Vessels.

SECTION 12. That all materials of foreign production which may be necessary for the construction of vessels built in the United States for foreign account and ownership, or for the purpose of being employed in the foreign trade, including the trade between the Atlantic and Pacific ports of the United States, and all such materials necessary for the building of their machinery, and all articles necessary for their outfit and equipment, may be imported in bond under such regulations as the Secretary of the Treasury may prescribe; and upon proof that such materials have been used for such purposes no duties shall be paid thereon. But vessels receiving the benefit of this section shall not be allowed to engage in the coastwise trade of the United States more than two months in any one year except upon the payment to the United States of the duties of which a rebate is herein allowed: *Provided*, That vessels built in the United States for foreign account and ownership shall not be allowed to engage in the coastwise trade of the United States.

SEC. 13. That all articles of foreign production needed for the repair of American vessels engaged in foreign trade, including the trade between the Atlantic and Pacific ports of the United States, may be withdrawn from bonded warehouses free of duty, under such regulations as the Secretary of the Treasury may prescribe.

SEC. 14. That the sixteenth section of an Act entitled "An Act to remove certain burdens on the American merchant marine and encourage the American foreign carrying trade, and for other purposes," approved June 26, 1884, be amended so as to read as follows:

"SEC. 16. That all articles of foreign or domestic production needed and actually withdrawn from bonded warehouses and bonded manufacturing warehouses for supplies (not including equipment) of vessels of the United States engaged in foreign trade, or in trade between the Atlantic and Pacific ports of the United States, may be so withdrawn from said bonded warehouses, free of duty or of internal revenue tax, as the case may be, under such regulations as the Secretary of the Treasury may prescribe; but no such articles shall be landed at any port of the United States."

At Sandusky, shippers are rushing coal to the upper lakes as rapidly as they can secure tonnage. The Baltimore & Ohio has about 20,000 tons to move to Lake Michigan, and unless ice stops the boats it will be sent forward this week.

H. C. BURRELL,

Marine Reporter.

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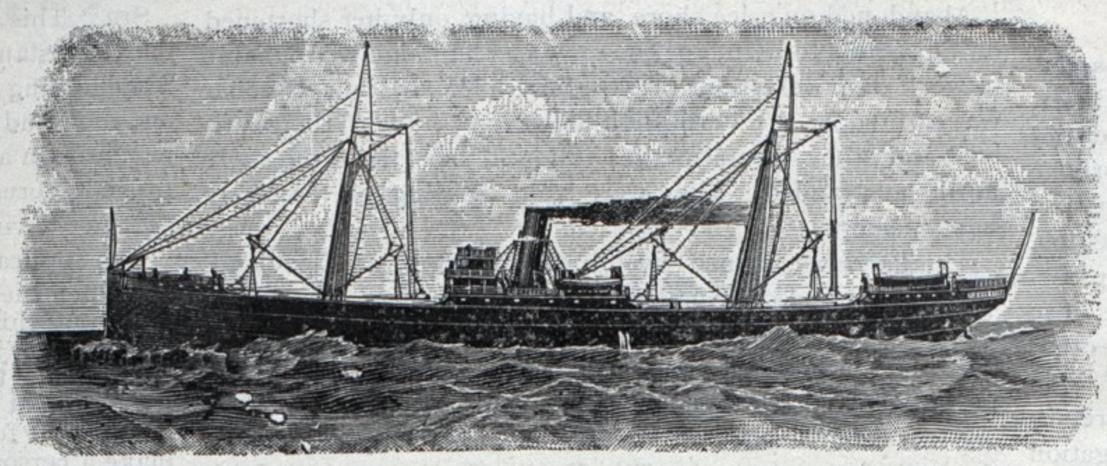

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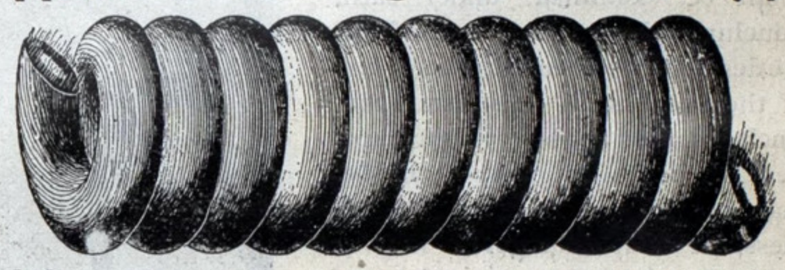

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A NEW FORM OF CELLULOSE.

BY E. L. FREELAND IN THE YALE SCIENTIFIC MONTHLY.

Since the advent of armored vessels, there has been a constant advance along the lines of both greater resistance and greater thickness in armor plate. This has been made necessary by an equal advance in the facility of fire, and the greater penetrative powers of modern ordnance. It was soon found, however, that armor of sufficient thickness to completely protect a whole vessel was out of the question, on account of its enormous weight, so that the system of protecting the machinery of cruisers by a heavy belt of armor, and a thick steel deck below the water line, extending from the armor to the extremities of the vessel, was resorted to. But even this means proved ineffectual, since water entering the comparatively unprotected ends of the vessel renders it liable to capsize, owing to the reduction of its range of stability, even allowing that it possesses a fairly good metacentric height.

These considerations induced builders to revert for instruction to the wooden ships of a former generation. It had often been observed that shot-holes in a wooden ship became greatly reduced in size, owing to the swelling of the wood around then, a condition which, of course, does not prevail in steel ships, and it was quickly perceived that if a substance of similar, or greater porosity could be devised, which might be placed in cruisers behind the armor, it would answer the same purpose.

As a first step in the right direction, bits of cork and similar light substances were employed, but the French Marine Department improved on this somewhat clumsy device, by the introduction of cocoa cellulose. This is made from the husks of the cocoa-nut, the cellulose being separated from the fibre by means of machines made especially for this purpose, and the brownish, powdery stuff resulting, is then treated with certain chemicals designed to render it incombustible. It is then placed under great pressure, into the bunkers of the vessel to be protected. The properties of the cellulose when attacked by water, are similar to those of any porous substance. They absorb water, and swell up, thereby filling the hole made with a saturated mass which resists any further entrance of water. Being springy and elastic a great resistance likewise is offered to the passage of shells through the material. In fact, up to a thickness of three feet, this cellulose is equivalent to steel, in a protective sense, in the proportion of six inches to one inch. Thus one huudred tons of cellulose would protect a ship, other armor also being present, as efficiently as one thousand tons of armor, in the same position. The advantages in many ways are apparent. But a still greater improvement has taken place during the past year. By a process invented by Mr. Mark W. Marsden, the pith of cornstalks has been utilized for this same purpose, namely an absorbent for water entering through shot-holes, and as this corn-pith cellulose possesses numerous advantages over the cocoa product, it is likely to be generally adopted. These advantages are detailed below:

The Navy Department determined to make a comparative test of the two substances, and a pair of cofferdams covered with steel armor plate was prepared for the purpose. The conditions were arranged to correspond as nearly as possible to the actual ones under which the cellulose would come into play. One of these bunkers was then filled with cocoa cellulose, and the other with the corn-pith variety.

They were then fired at with six-inch shells, having a muzzle velocity of one thousand feet per second. Water was then admitted to the holes in front, and after an hour the plates were examined. The results in the case of the cocoa cellulose were: a quart of the cellulose was ejected from the hole in the rear, and in ten minutes water was flowing through at the rate of a gallon every two minutes. In the case of the corn-pith, little or none was ejected, and not a drop of water came through in the specified time. The results were very similar when the armor was attacked by eight-inch balls.

The washing-out effect of waves was then tried by means of a jet of water from a steam pump, and it was found that both substances were but slightly affected, the cocoa somewhat more so than the corn-pith, however. The explosion of gunpowder in contact with them caused the cocoa to ignite, while the corn-pith was unaffected. Lastly, a test was made with a view to determining the relative decay of the two products. They were enclosed in separate iron tanks containing water. At the end of a month, it was found that the cocoa had attacked both the paint which covered the iron, and the iron itself. The tank containing the corn-pith was practically unaffected.

In addition to these striking proofs of the superior qualities of corn-pith, it does not have to be packed so densely as cocoa, the tests mentioned being made with 7.7 pounds per cubic foot of the cocoa, and only 6.6 pounds of corn-pith. As the latter costs $100 less per ton, its total cost comes to less than two-thirds the cost of the former.

The corn–pith is obtained as a by-product from grist-mills, etc., which accounts for its small cost. As no other use for the stalks has been discovered this new process utilizes what has hitherto been waste.

The policy of our navy department has always been to keep the metacentric height of ships as reduced as possible, in order that they may be good gun platforms, or in other words, that their stability may be as great as possible, at the ontset of a battle. Cellulose, preserving as it does to a great extent the stability of vessels under fire, is of incalculable assistance in this direction, and enables vessels so equipped to carry armaments corresponding to vessels far heavier than themselves, which are not so equipped.

It is therefore not too much to say that this discovery is of equal value to that of Harveyized armor, in its bearings upon naval problems of the present day.

LAKE UNDER-CURRENTS.

The diver at the work on the Pewabic this summer reports as follows: "What struck me as strange was that on some days there would be a rather swift current that would carry away the disturbed particles at once and we were troubled very little by them. On other days there was apparently no current whatever and we would be compelled to wait until the dirt settled and the water became clear again. Whether there was any regularity in the appearance of these currents, I was not able to observe."

LAKE CASUALTIES.

[REPORTED BY N. B. CONGER, LOCAL FORECAST OFFICIAL AND MARINE AGENT.]

Two vessels foundered on Lake Erie with a loss of 19 lives; one schooner foundered on Lake Michigan, and there were numerous strandings at different points, due mainly to the fog that prevailed during the latter part of October.

October 21.—Schooner F. W. Gifford, ore laden, Escanaba to Fairport, sprung a leak in a heavy sea and foundered in midlake off Point Betsie, Lake Michigan; total loss. The crew escaped in small boats and were picked up by the schooner City of Cheboygan.

October 24.—The steamer Tuscarora stranded on Thunder Bay Island during the dense fog in the early morning; the vessel was released that evening by lightering 800 tons of merchandise.

October 24.—Steamer A. D. Thompson with whalebacks 111 and 116 in tow, grounded at the Limekilns during dense fog; released after lightering without serious damage.

October 25.—The steamers Fayette Brown and Italia and schooner Polynesia, grounded during dense fog near the "Dike" in St. Mary's river, released without damage.

October 27.—Steamer Forest City with consort, grounded near Round Island, Lake Superior, in dense fog: released without damage.

Steamer Monteagle stranded during heavy fog near Thirty Mile Point, Lake Ontario; released after lightering 100 tons of cargo; damage about $100.

Steamer J. W. Wescott stranded on Goose Island Shoals, Straits of Mackinaw, during dense fog; released after lightering 150,000 feet of lumber.

November 2.—Steamer Mahoning stranded outside Erie harbor by reason of heavy sea and low water; released.

Steamer Lycoming, during heavy sea and high winds, collided with piers in Milwaukee harbor; damages nominal.

Steamer Raleigh let go her consort off Sand Beach during heavy weather.

November 4.—Steamer Rosedale, wheat laden, Fort William to Prescott, was disabled by rudder breaking off Rondeau, Lake Erie; towed to harbor by steamer Vega.

November 5.—Car Ferry Fo. 4, in tow of tug Ames, struck the pier and went aground at St. Joseph during heavy westerly gales; released in a damaged condition.

November 6.—Steamer Idaho foundered on Lake Erie, 12 miles from the east end of Long Point and four miles from shore. The steamer went down in eight fathoms of water during a heavy westerly gale. Nineteen of the crew of 21 perished; the remaining two clung to the spars of the vessel and were taken off ten hours later by Capt. F. D. Root, of the steamer Mariposa. The rescue was accomplished under conditions that made it a signal act of gallantry and good seamanship. Loss of steamer estimated at $15,000; cargo, $75,000.

Schooner Annie Grover reached Buffalo with foresail, boom, and 40,000 feet of lumber from her deck-load gone.

November 9.—Steamer J. C. Pringle became disabled off Sand Beach, Lake Huron, in a heavy northwest gale and reached Port Huron with much difficulty; wind 42 miles northwest at Sand Beach; damage, $3,500. Steamer Vega ashore at Huron, Lake Erie, in heavy gale; released.

November 11.—Schooner Una stove a hole in bow and sank in harbor at St. Joseph, Mich., during heavy northwest gale; crew rescued by life-saving service.

Schooner Groton, coal laden, foundered at anchor in a heavy northwest gale 12 miles from Port Stanley; total loss. Crew rescued by life-saving service; estimated loss, $9,000.

Steamer Gettysburg ran on Crab Island shoals, Lake Huron, during heavy northeast gale and snow storm; released with nominal damages.

Steamer Roman, coal laden, for Milwaukee, left Ashtabula harbor in the face of a heavy northwest gale and heavy seas, and was picked up by the sea and dropped on the bottom, damaging her back; the vessel was towed into the harbor and sank. The steamer will be docked for repairs.

November 12.—Steamer Egyptian stranded near Point Sable, Lake Huron, during heavy weather; reported badly damaged.

Thomas W. Pollock has been appointed second assistant keeper of the light station at Twin Rivers Point, Wis., vice Joseph Napizinski.

Receiver's Sale of Tugs.

The entire fleet of tugs of the Vessel Owner's Towing Company to be sold by order of the Circuit Court of Cook County, Illinois. Bids for all or any of these tugs will be received by the receiver until 9 a. m., November 22, 1897. All bids to be accompanied by a deposit of 10 per cent. of the amount of bid. The tugs can be seen by applying to the receiver.

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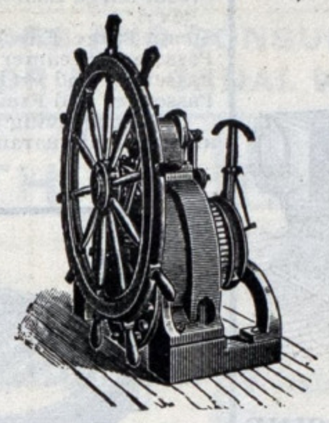

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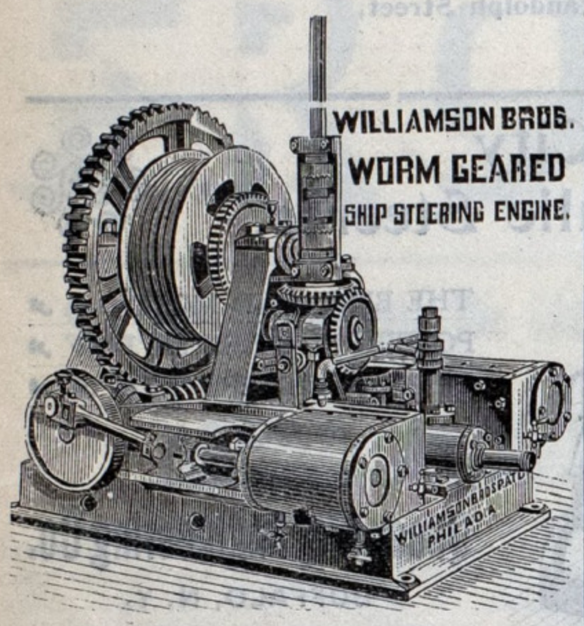

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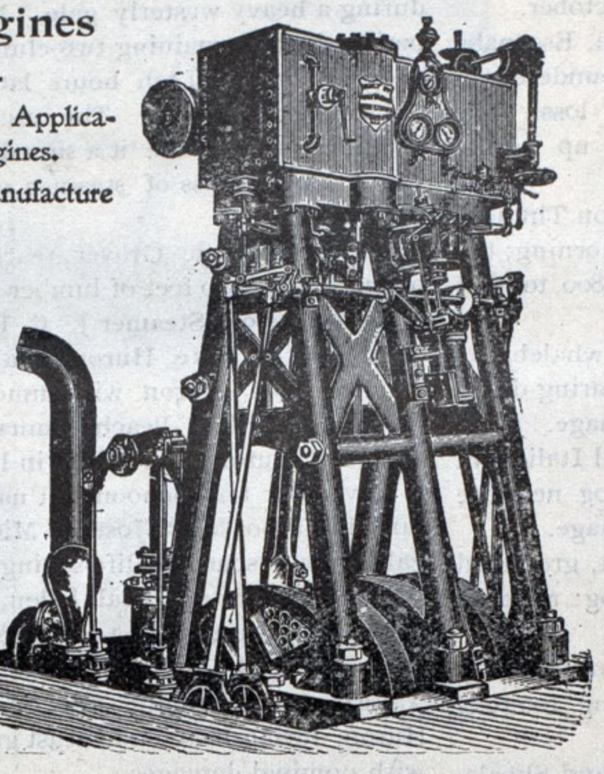

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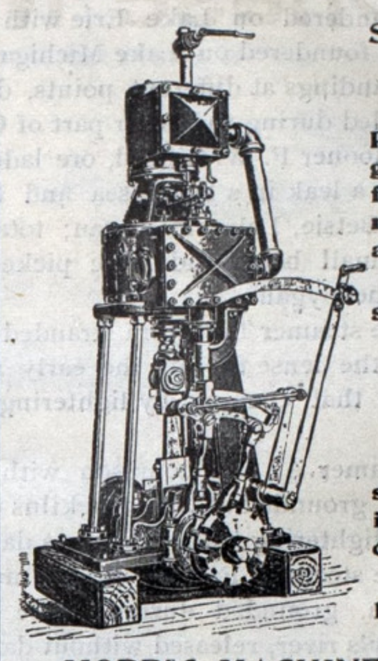

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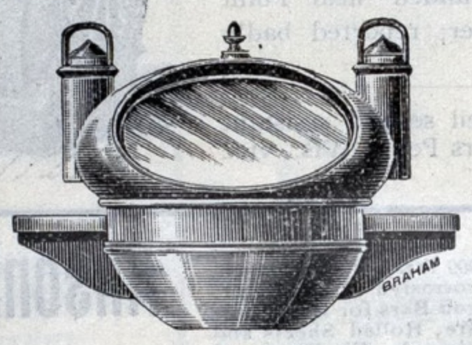

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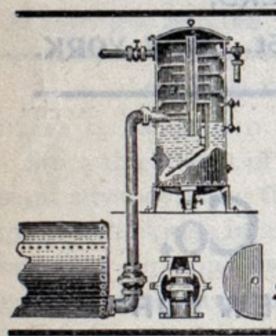

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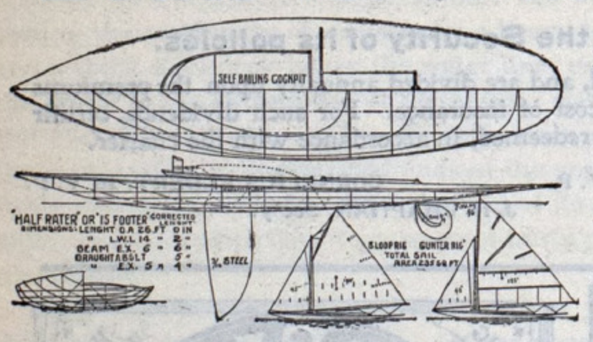

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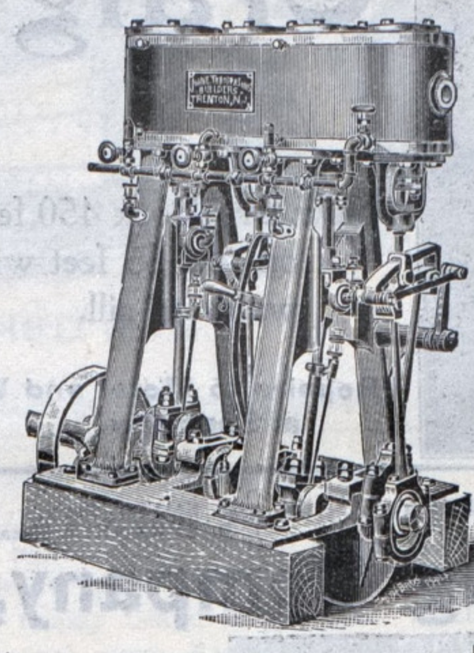

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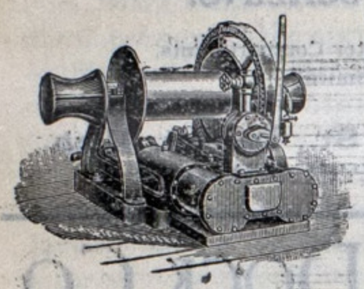

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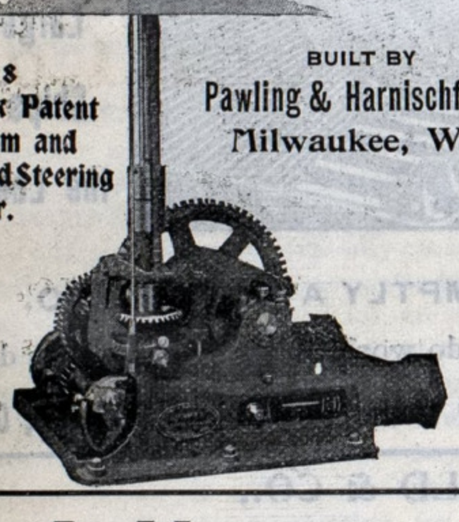

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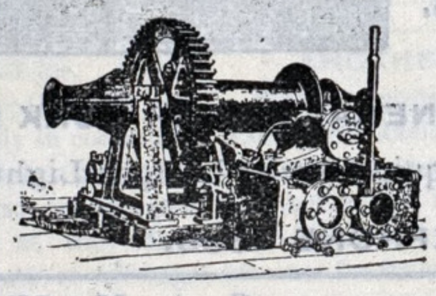

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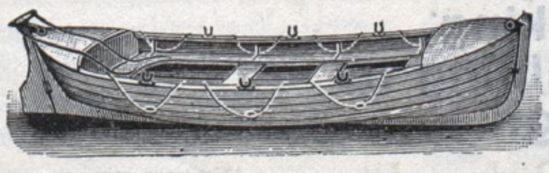

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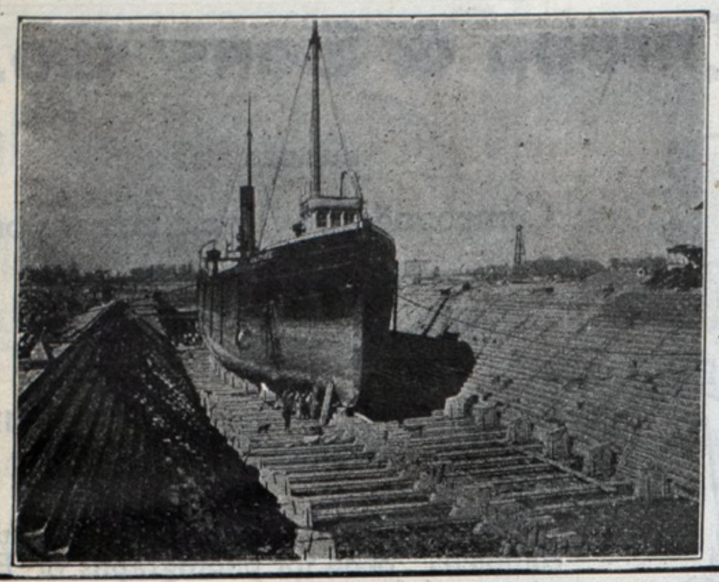

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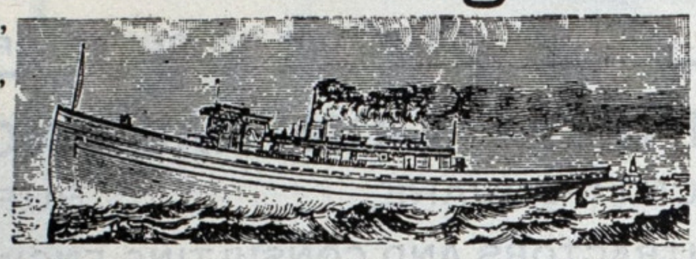

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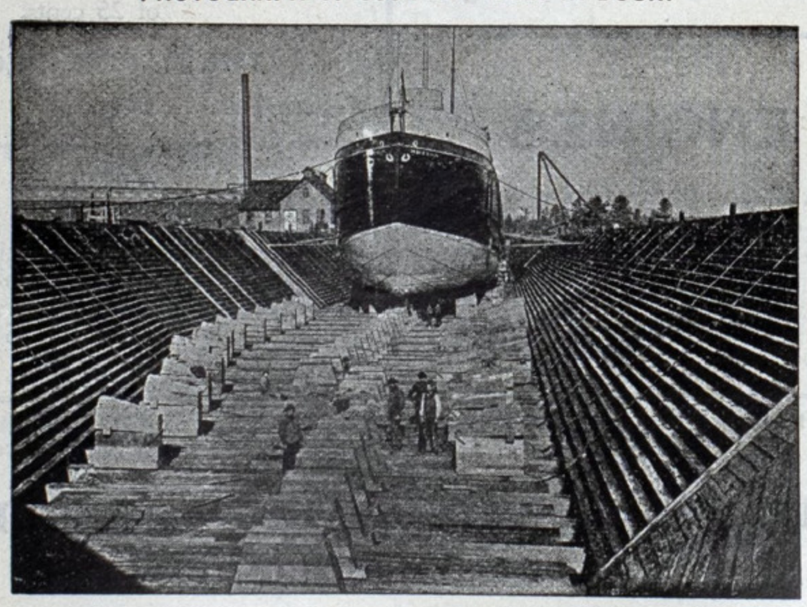

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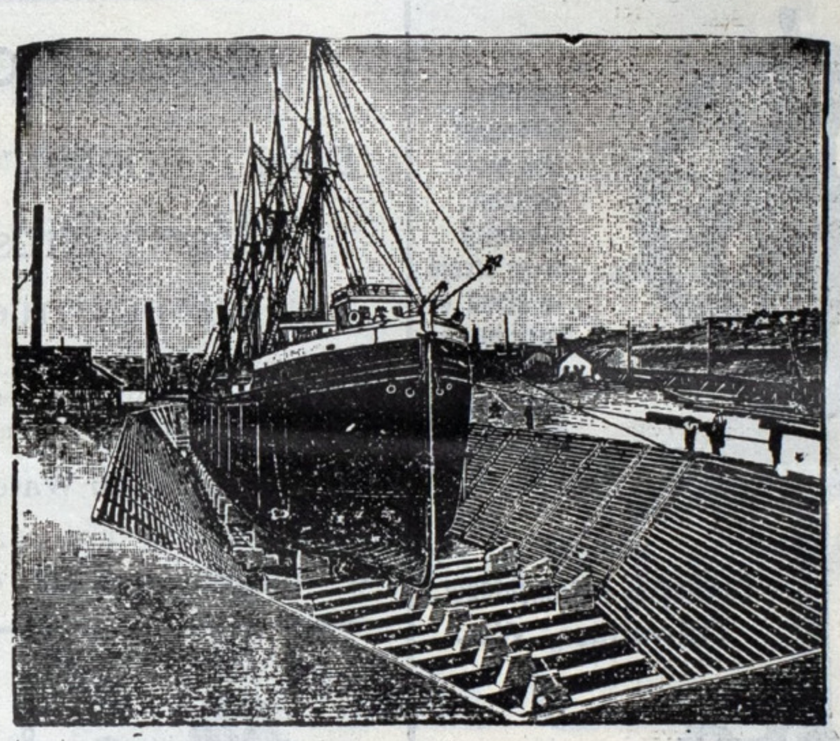

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